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INTELLIGENCE FOR THE CHANGING WORLD OF BUSINESS TECHNOLOGY

A Dell Story: Migrating Crystal Reports 2008/11 to SAP Crystal Reports for Enterprise - Tools and Best Practices from the Customer and SAP

Brian Durning – Dell, Inc. and Henry Kam – SAP, AG.

Learning Points

- The migration scenario we will explore is migrating Crystal Reports 2008/2011 on SAP BusinessObjects 3.1 with a universe data source to Crystal Reports for Enterprise on SAP BusinessObjects BI 4.0 using a common semantic layer data source
- We will briefly discuss migration options and various landing points during the migration and conversion process
- You will understand the tools and their purpose in the migration and conversion process
- What functionality and features have been added in SP4

About Brian

- Product Manager, BusinessObjects at Dell, Inc.
- Crystal Developer for 13 years
- BusinessObjects Developer for 5 years
  - Working in large enterprise / Fortune 100 companies for both Crystal and BOBJ Report and Universe development
- Crystal SIG Chair for ASUG for 3 years
- Customer Chair for Crystal Enterprise Reporting Influence for ASUG
- Vice-chair for Dallas/Forth Worth ASUG chapter for 2 years
- I am an occasional blogger
  - http://www.crystalblogger.com
- I Tweet
  - daltexswede

About Henry

- Senior Solutions Manager for Crystal Reports, SAP
- SAP Point of Contact/Influence Council Co-Chair for ASUG
- Focused on Large Enterprise customer requirements
- Contact Details:
  - henry.kam@sap.com

What We'll Cover …

- Planning the Migration
- Migration Options
- Tools Overview
- Upgrade Management Tool
- Information Design Tool
- Crystal Reports for Enterprise
- BusinessObjects FP4
- Demo – Creating Reports with Relational Connections
- Demo – Saving Desktop Reports to the BI Platform
- Wrap-up

Planning

- As with any successful migration you need to plan. There is nothing in the SAP BusinessObjects BI 4.0 platform that should cause you any concern
- New Tools
  - Upgrade Management Tool – Used to move repository objects from lower versions of SAP BusinessObjects to SAP BusinessObjects BI 4.0
  - Information Design Tool – Used to create and modify the new common semantic layer universe or .UNX file
  - Crystal Reports for Enterprise – This is a new platform for Crystal Reports. While it has retained many of the legacy functionality the look and feel has changed utilizing SAP BusinessObjects GUIs as well as adding some time saving development tools

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Partial Migration

- What is a partial migration?
  - A partial migration is moving repository objects from SAP BusinessObjects 3.1 to SAP BusinessObjects BI 4.0 and leaving their original data connections
- Are there any risks/benefits to a partial migration?
  - There are no risks but this might be an option for you if you need to get off of older leased equipment and want to start the movement towards a full migration
- Can I move my Crystal Reports to SAP BusinessObjects BI 4.0 and still use my existing data sources?
  - Yes, when Crystal Reports are moved using the Upgrade Management Tool your reports will land in SAP BusinessObjects BI 4.0 as Crystal Reports 2011. It is when you move to Crystal Reports for Enterprise that you have to choose either the .UNX data source or with Support Pack 4 there is now Direct to Data support.

Full Migration

- What is a full migration?
  - A full migration is moving all necessary repository objects from legacy SAP BusinessObjects environments to SAP BusinessObjects BI 4.0. Then completing the migration by converting to Crystal Reports for Enterprise
- Are there any risks by performing a full migration at this time?
  - With the initial version of 4.0 the only supported data source is the common semantic layer or .UNV. SP4 adds back Direct to Data.

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Tools — Upgrade Management Tool (UMT)

- UMT is found under the SAP BusinessObjects BI Platform folder and is installed as part of the SAP BusinessObjects BI 4.0 suite
- UMT is used to migrate from previous versions of SAP BusinessObjects to SAP BusinessObjects BI 4.0
- The lowest SAP BusinessObjects Enterprise version that the UMT can migrate from is XI R2
- UMT is not to be confused with the Lifecycle Manager, which moves objects between the same level platforms, i.e., SAP BusinessObjects BI 4.0 to SAP BusinessObjects BI 4.0

Tools — Information Design Tool (IDT)

- The IDT is part of the BI Platform Client Tool collection ("SBOP BI PLAT 4.0 SP04 (w/ FP03) CLIENT TOOLS WINDOWS (32B)") and is not installed as part of the BI Platform
- The IDT is used to create or modify the new common semantic layer (.UNX) files
- In addition to creating .UNX files the IDT is used to convert universe or .UNV files to the common semantic layer or .UNX file type

Tools — Crystal Reports for Enterprise (CRE)

- Crystal Reports for Enterprise remains a standalone application
- The initial 4.0 version only supports .UNX files as a data source. SP4 adds back support for Direct to Data.
- Crystal Reports for Enterprise can be used as a migration tool but in the current version you will be expected to convert all reports once they are opened in the tool
- Any report converted to Crystal Reports for Enterprise can no longer be opened in a previous version of Crystal Reports

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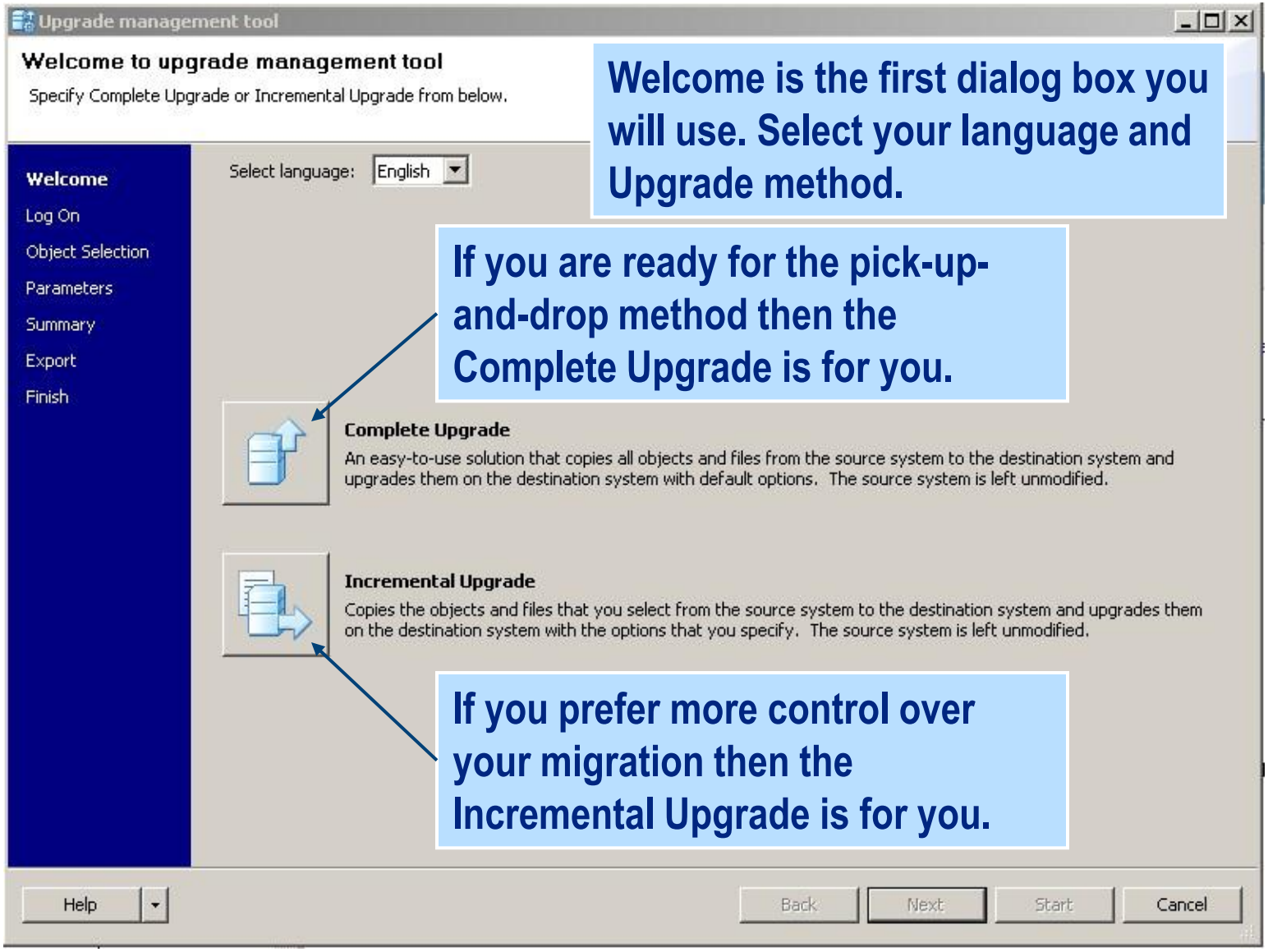
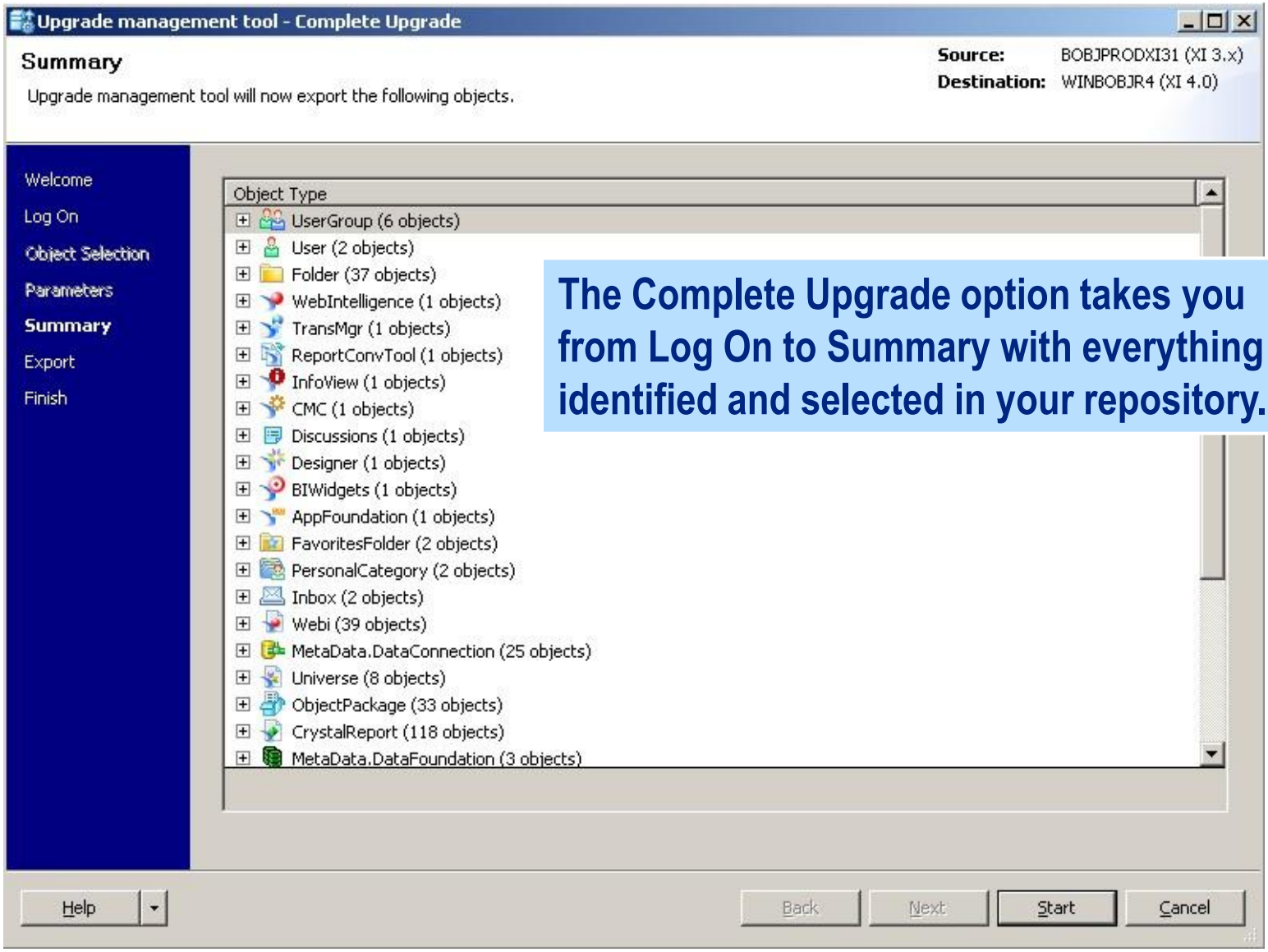
Tools — Upgrade Management Tool (UMT)

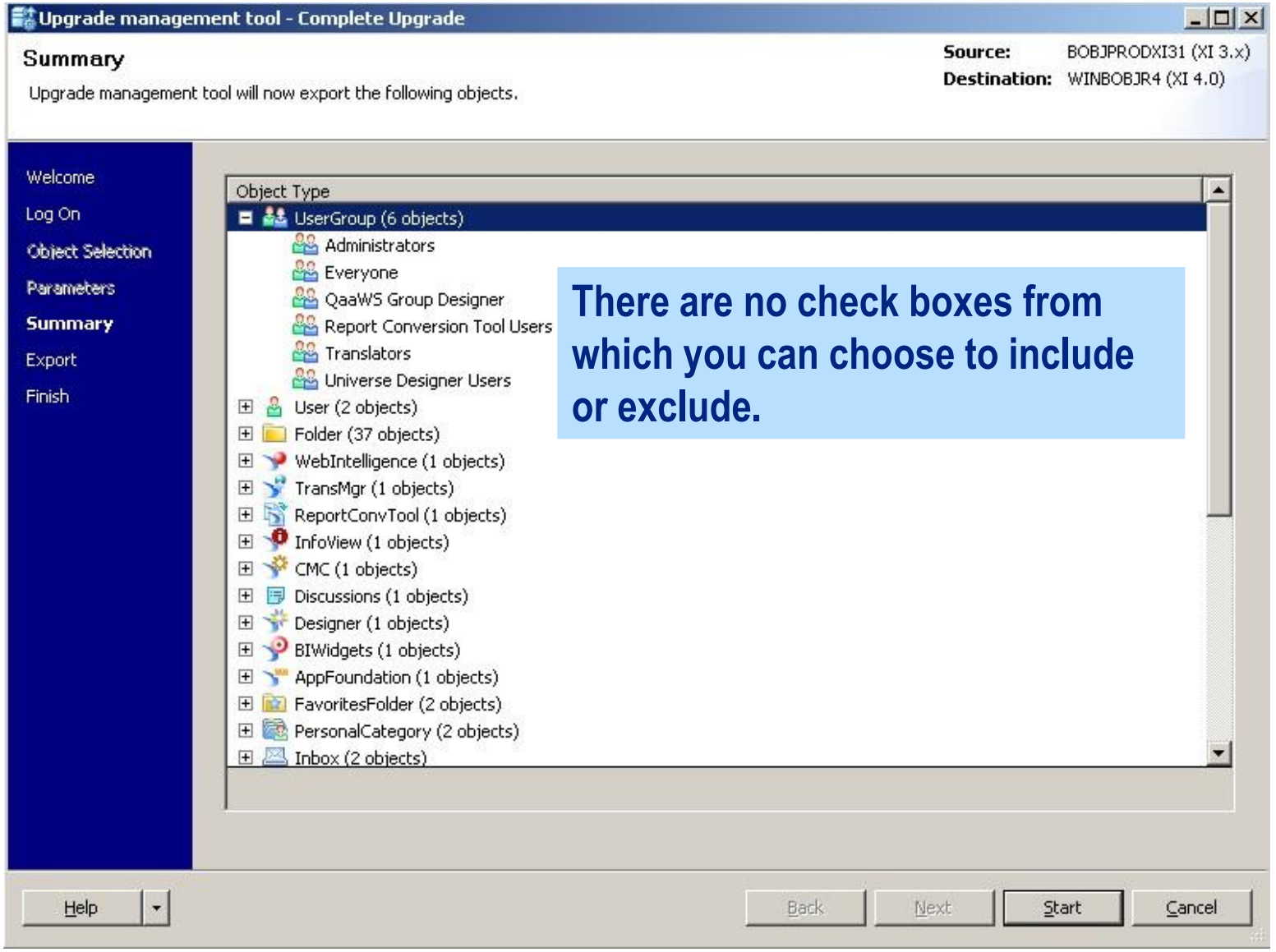

Upgrade management tool
Welcome to upgrade management tool
Specify Complete Upgrade or Incremental Upgrade from below.
Welcome
Log On
Object Selection
Parameters
Summary
Export
Finish
Select language:
English
Welcome is the first dialog box you will use. Select your language and Upgrade method.
If you are ready for the pick-up-and-drop method then the Complete Upgrade is for you.
Complete Upgrade
An easy-to-use solution that copies all objects and files from the source system to the destination system and upgrades them on the destination system with default options. The source system is left unmodified.
Incremental Upgrade
Copies the objects and files that you select from the source system to the destination system and upgrades them on the destination system with the options that you specify. The source system is left unmodified.
If you prefer more control over your migration then the Incremental Upgrade is for you.
Help
Back
Next
Start
Cancel

Tools — UMT: Complete Upgrade, Summary

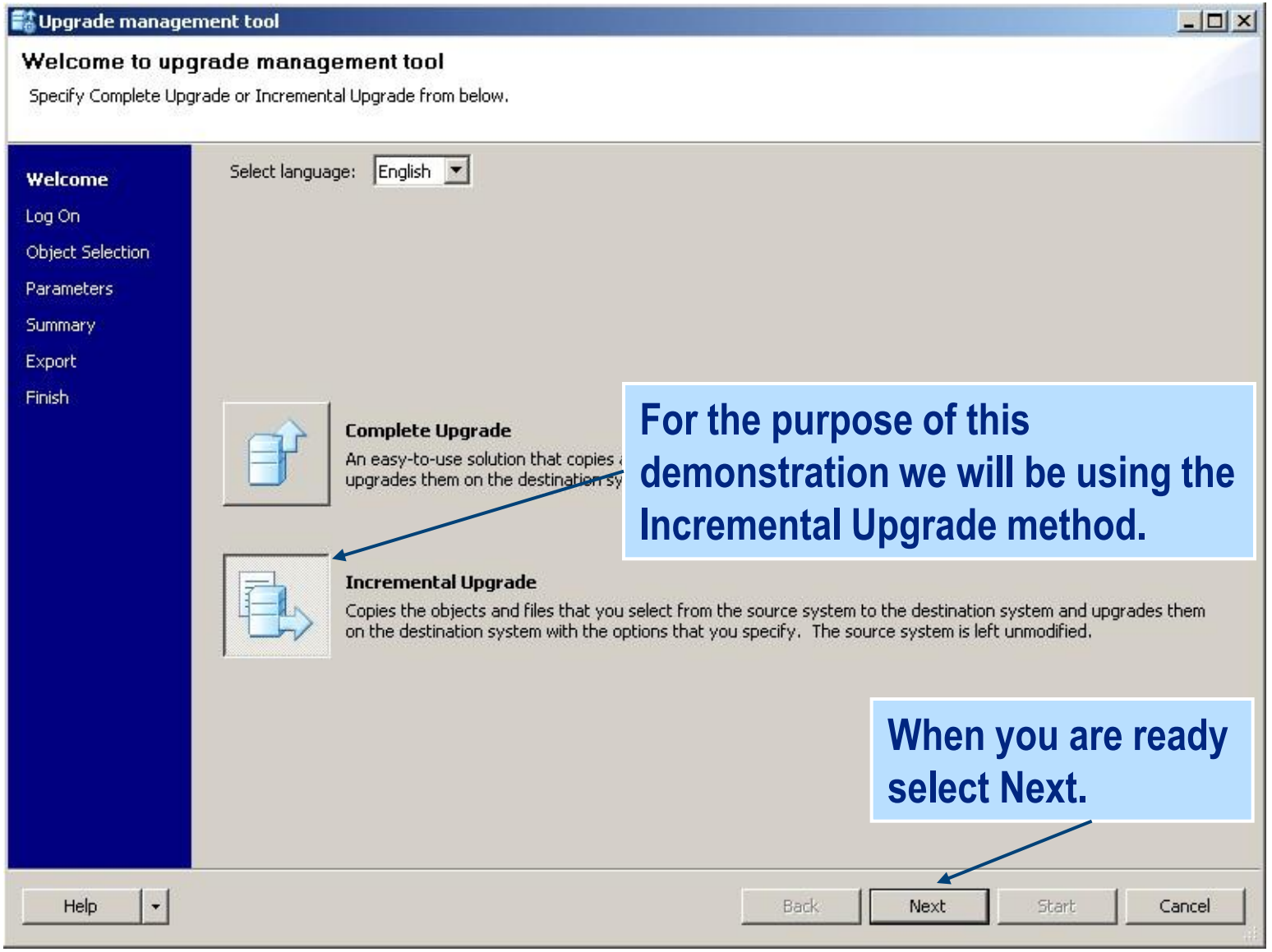


The Complete Upgrade option takes you from Log On to Summary with everything identified and selected in your repository.

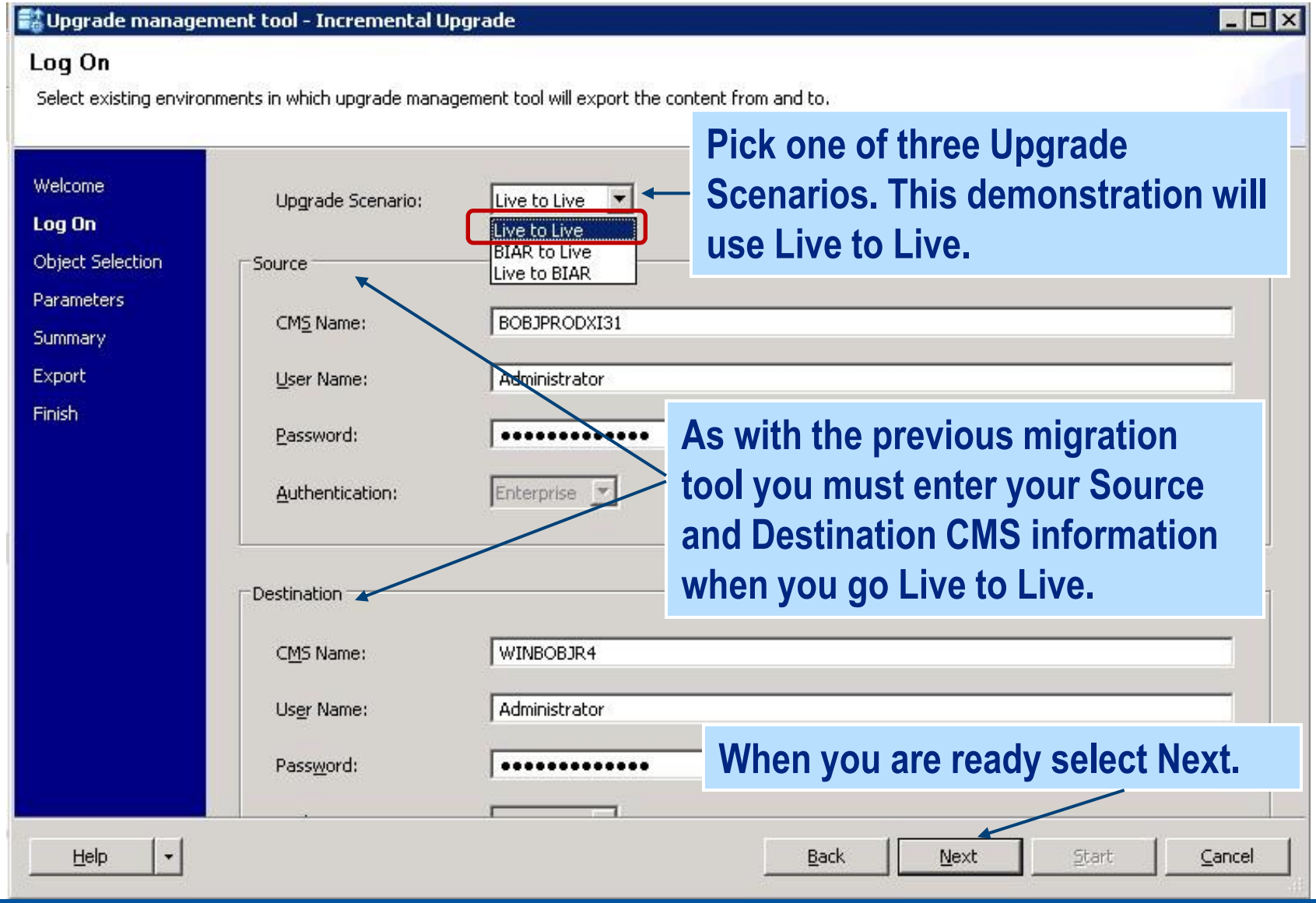
Tools — UMT: Complete Upgrade, Expanded



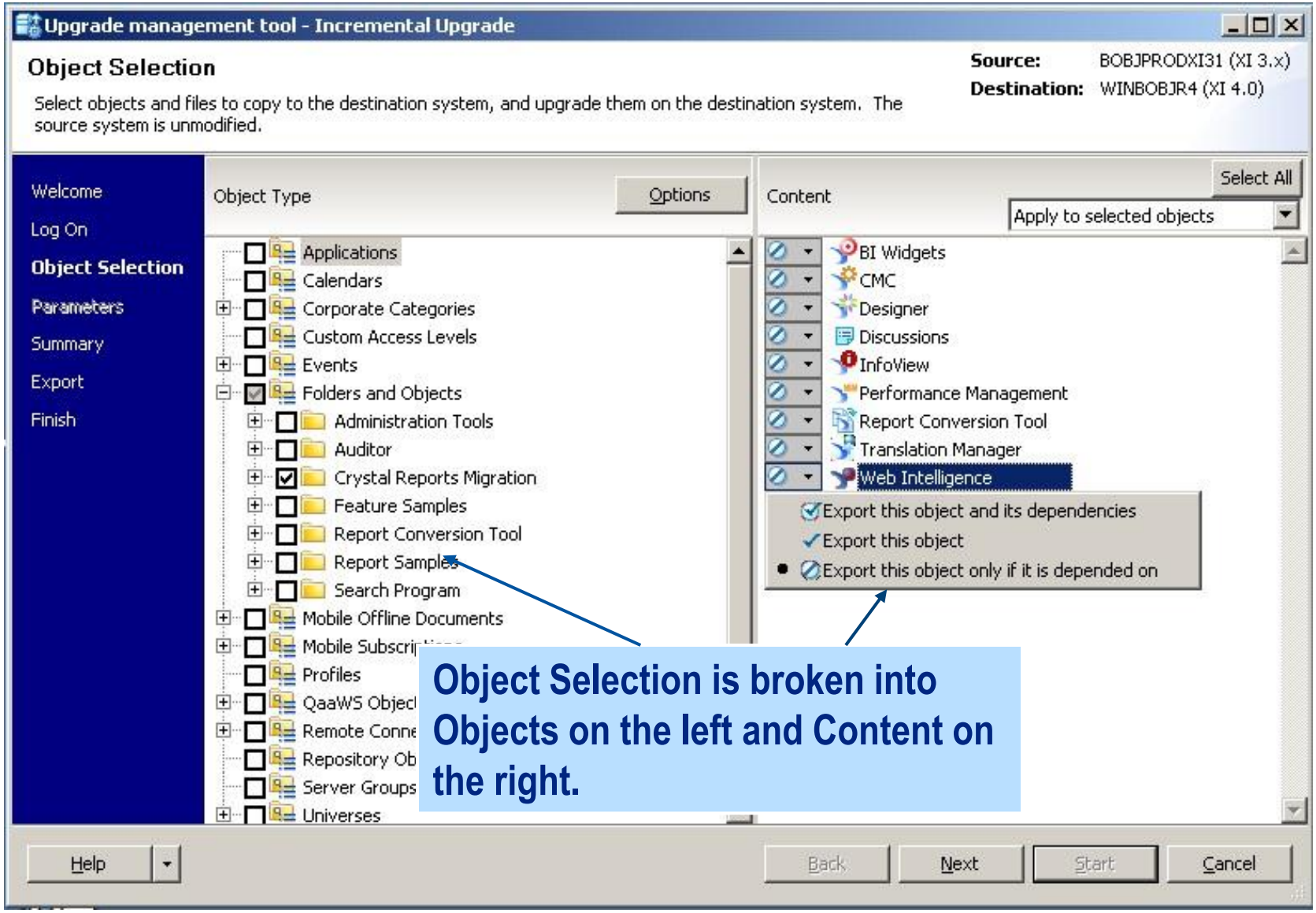
Tools — UMT: Incremental Upgrade


Upgrade management tool
Welcome to upgrade management tool
Specify Complete Upgrade or Incremental Upgrade from below.
Welcome
Log On
Object Selection
Parameters
Summary
Export
Finish
Select language:
English
Complete Upgrade
An easy-to-use solution that copies
upgrades them on the destination sy
Incremental Upgrade
Copies the objects and files that you select from the source system to the destination system and upgrades them on the destination system with the options that you specify. The source system is left unmodified.
For the purpose of this demonstration we will be using the Incremental Upgrade method.
When you are ready select Next.
Help
Back
Next
Start
Cancel

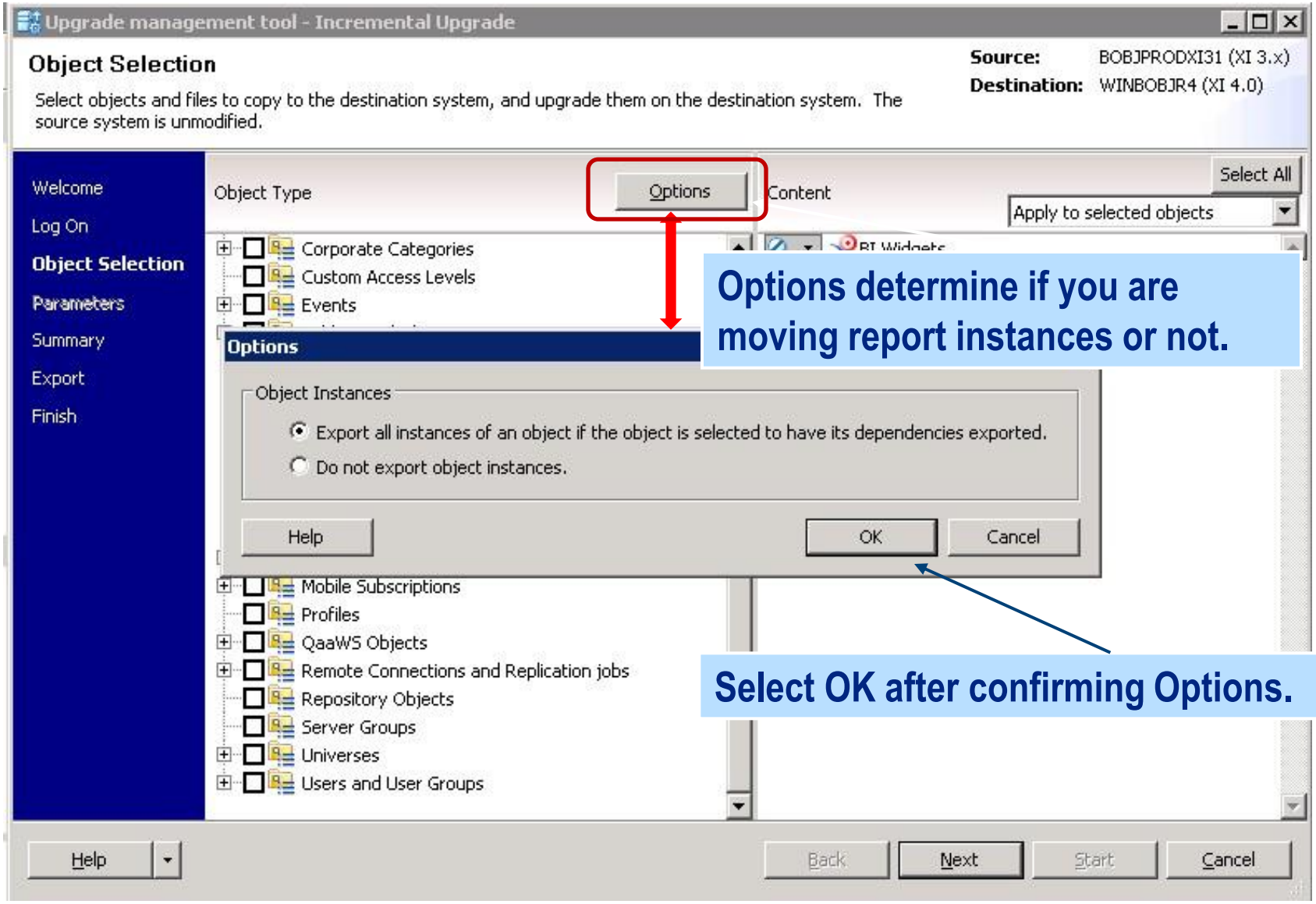
Tools — UMT: Incremental Upgrade, Log On



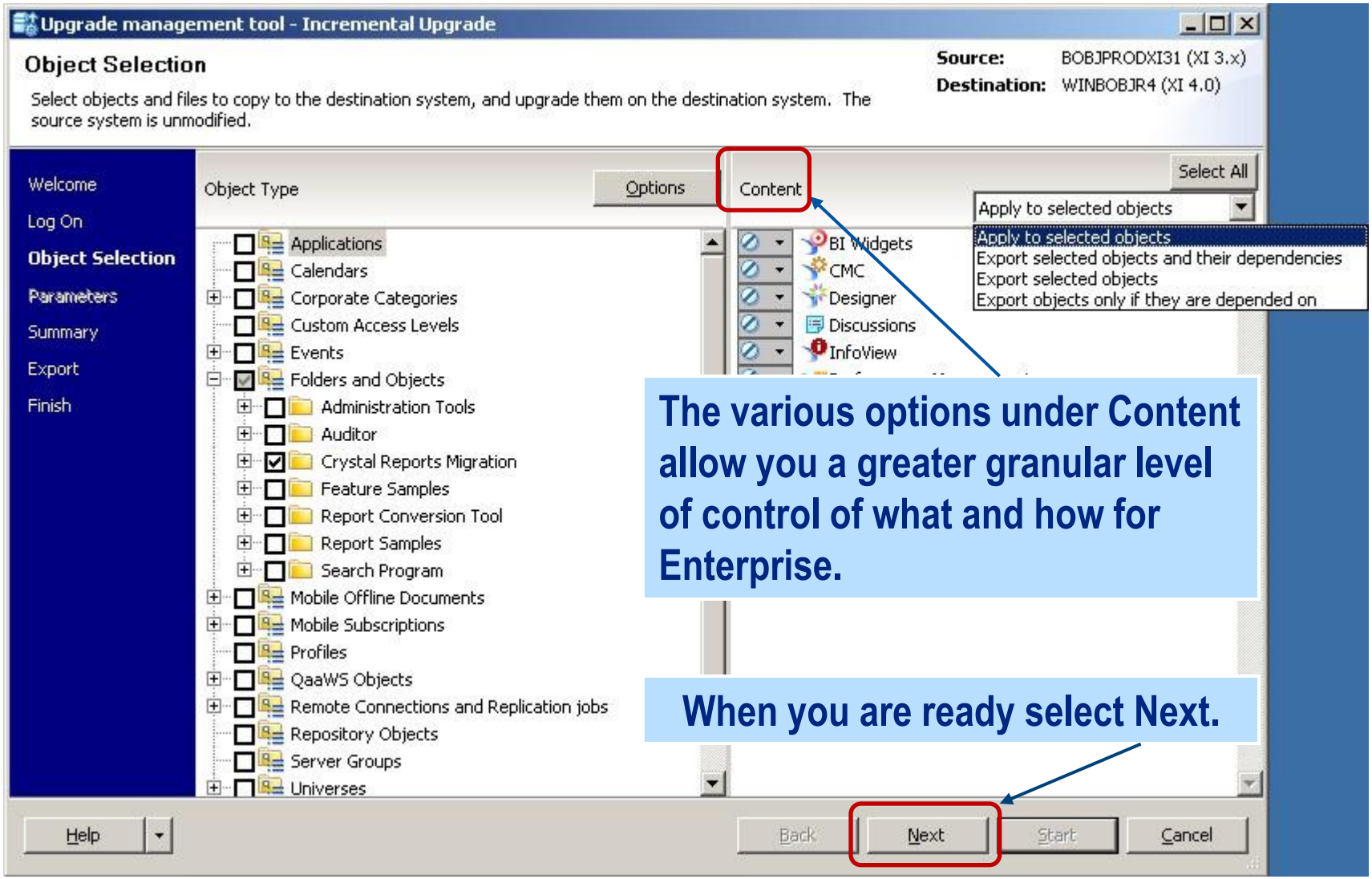
Tools — UMT: Object Selection, Object or Content



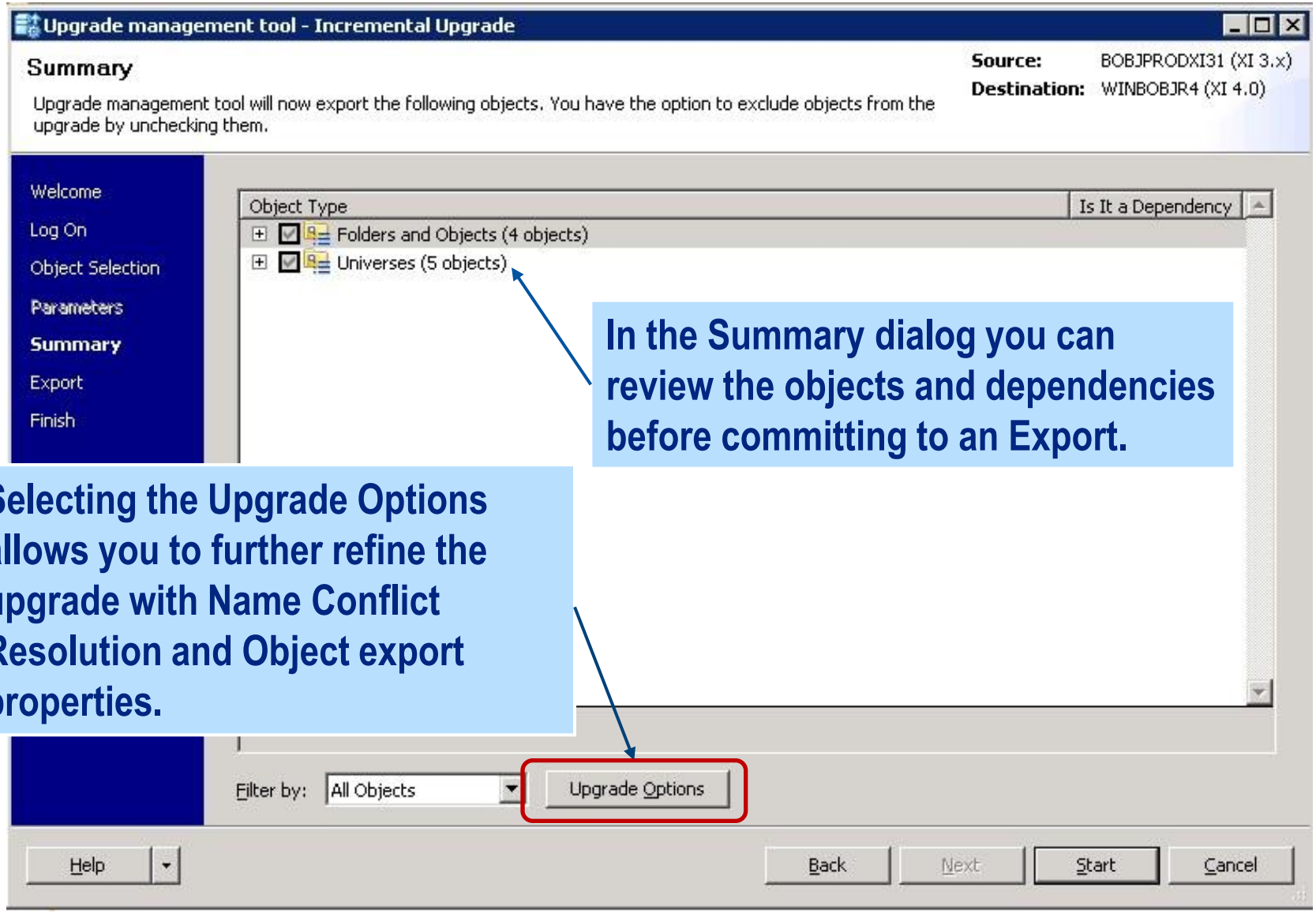
Tools — UMT: Incremental Upgrade, Object Selection



Tools — UMT: Incremental Upgrade, Content

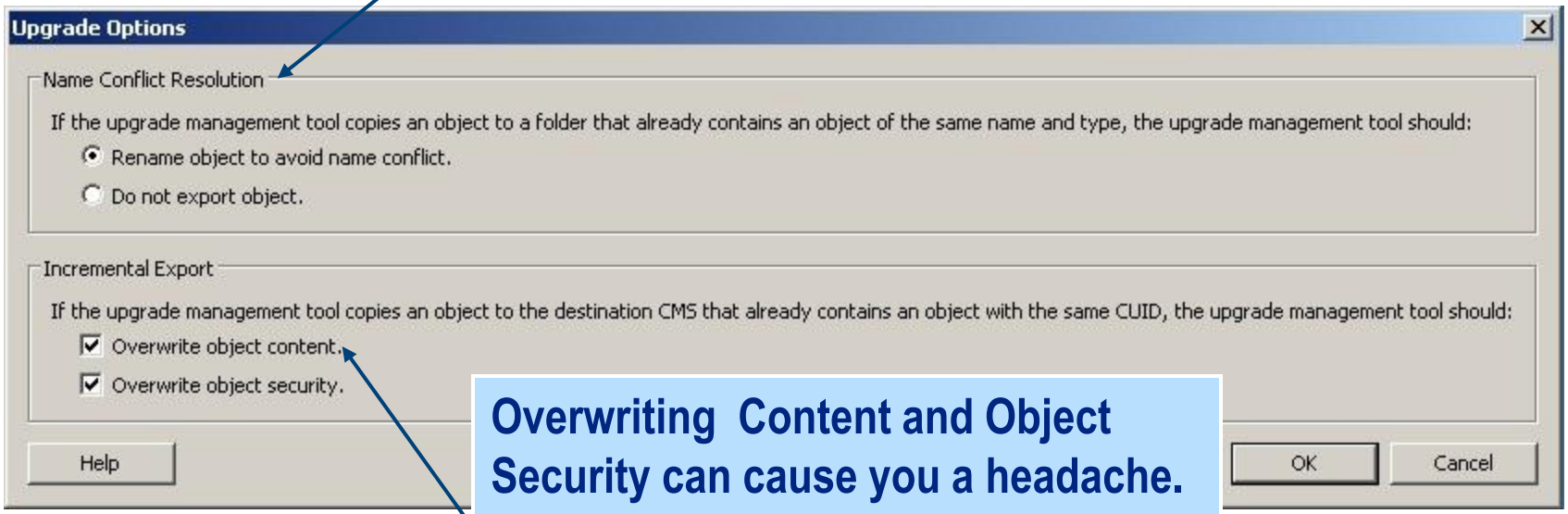


Tools — UMT: Incremental Upgrade, Summary


Upgrade management tool - Incremental Upgrade
Summary
Upgrade management tool will now export the following objects. You have the option to exclude objects from the upgrade by unchecking them.
Source: BOBJPRODXI31 (XI 3.x)
Destination: WINBOBJR4 (XI 4.0)
Welcome
Log On
Object Selection
Parameters
Summary
Export
Finish
Object Type
Is It a Dependency
Folders and Objects (4 objects)
Universes (5 objects)
In the Summary dialog you can review the objects and dependencies before committing to an Export.
Selecting the Upgrade Options allows you to further refine the upgrade with Name Conflict Resolution and Object export properties.
Filter by:
All Objects
Upgrade Options
Help
Back
Next
Start
Cancel

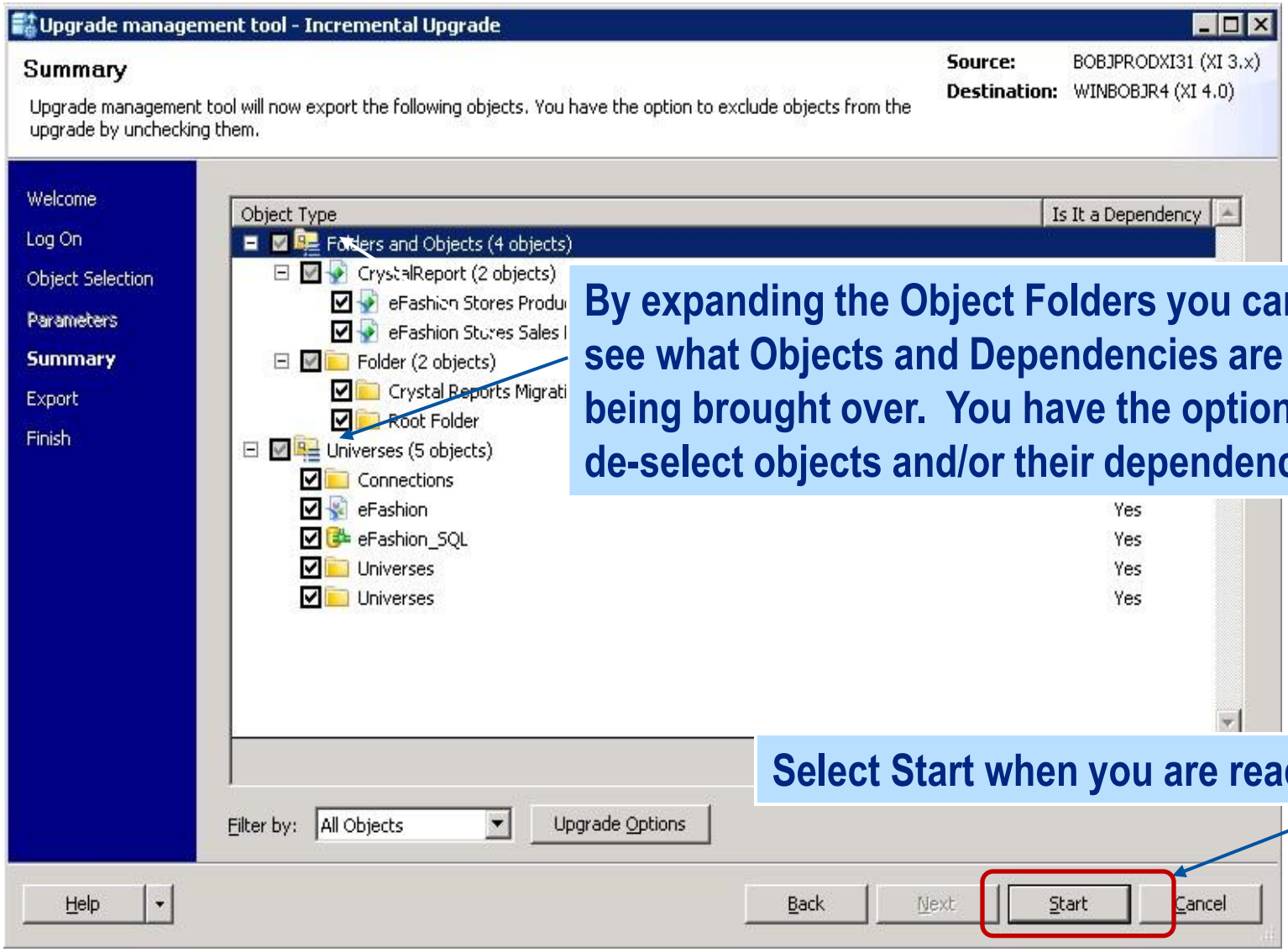
Tools — UMT: Incremental Upgrade, Upgrade Options

As an Administrator you should become very familiar with CUIDs. Especially in .NET or JAVA applications where the Object CUID is used.

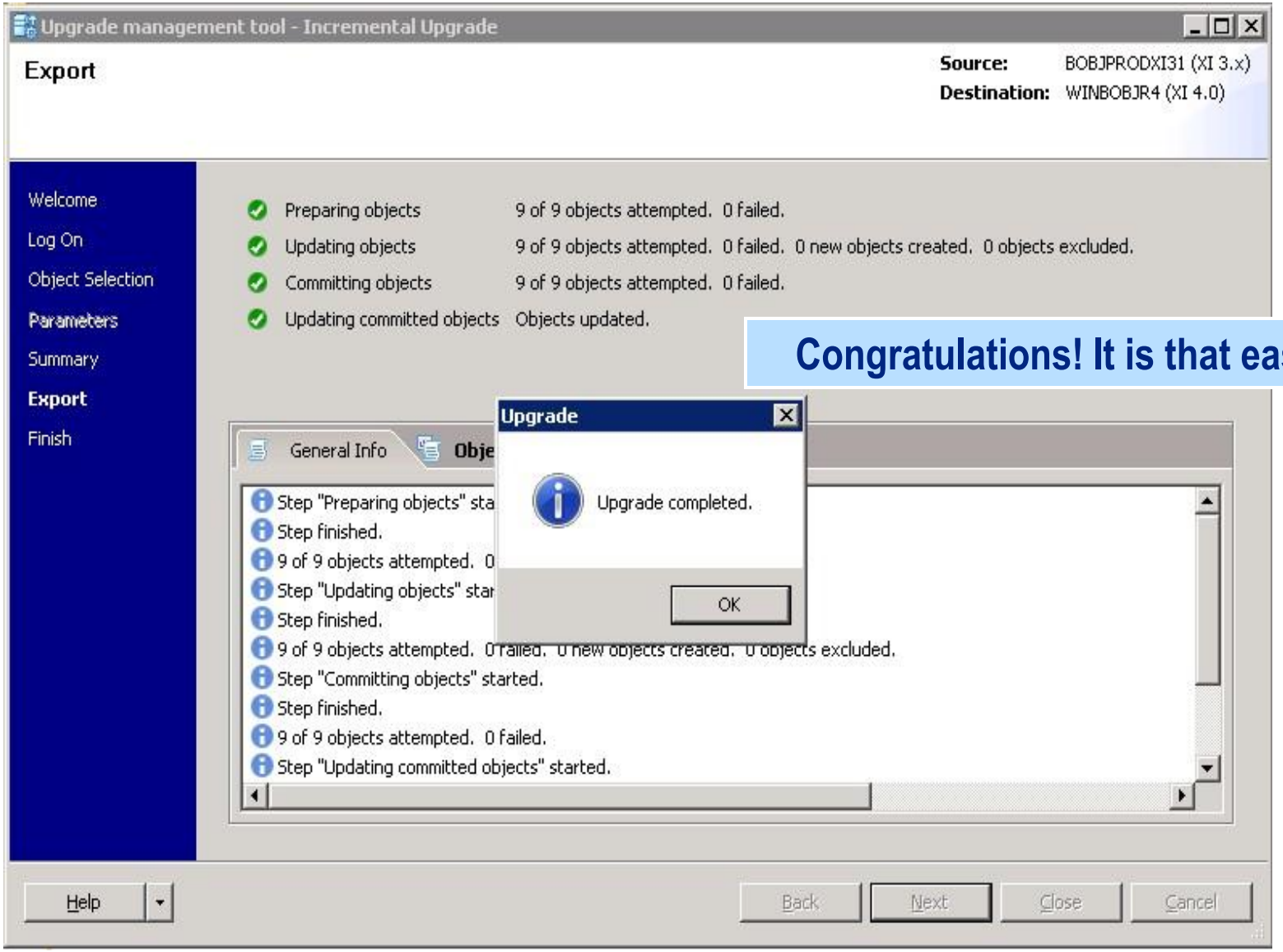

Upgrade Options
Name Conflict Resolution
If the upgrade management tool copies an object to a folder that already contains an object of the same name and type, the upgrade management tool should:
Rename object to avoid name conflict.
Do not export object.
Incremental Export
If the upgrade management tool copies an object to the destination CMS that already contains an object with the same CUID, the upgrade management tool should:
Overwrite object content.
Overwrite object security.
Help
OK
Cancel

Overwriting Content and Object Security can cause you a headache. Be sure to fully understand what this means. If unsure, unselect these options.

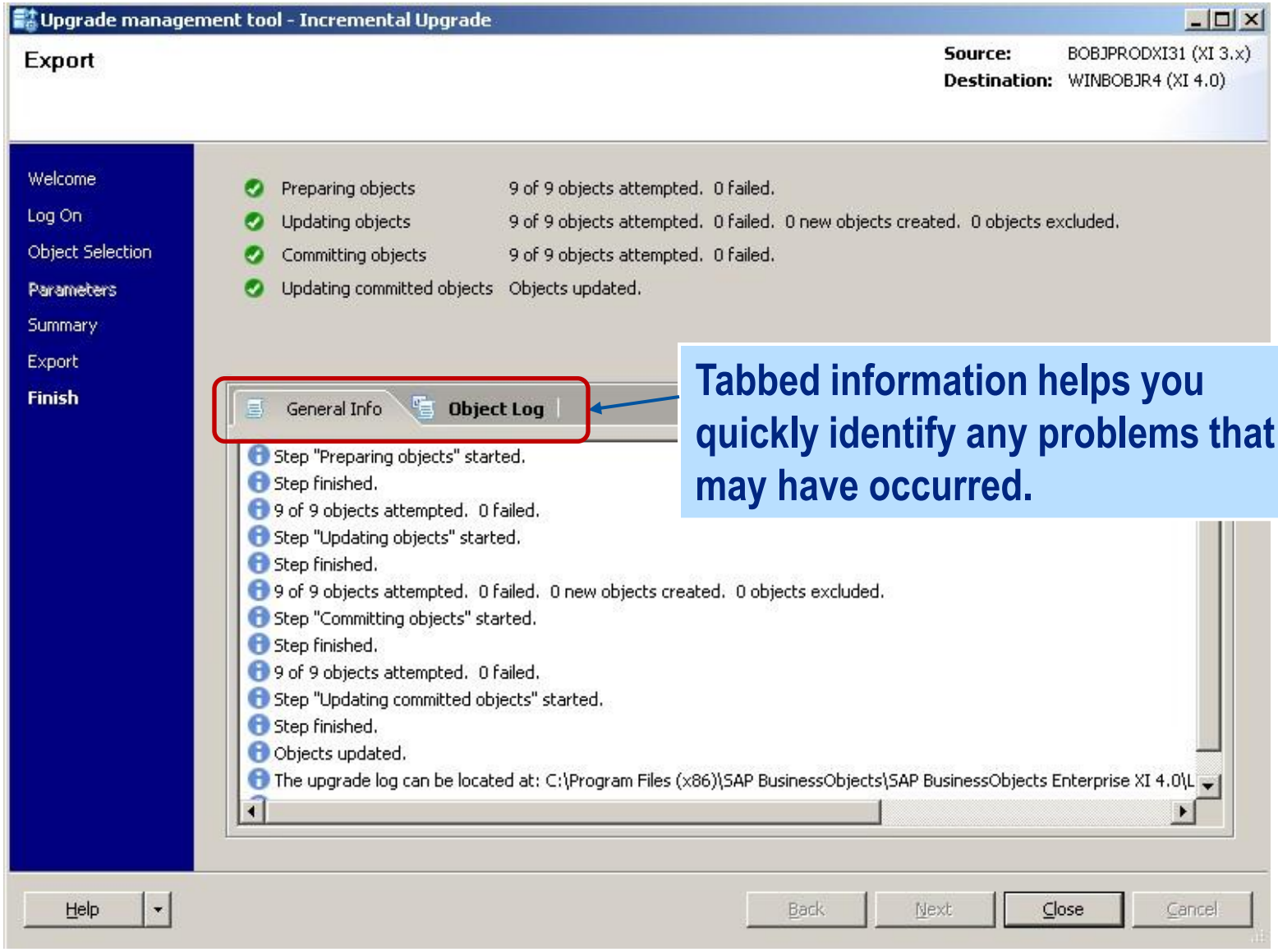
Tools — UMT: Incremental Upgrade, Final Object Selection



Tools — UMT: Incremental Upgrade, Export

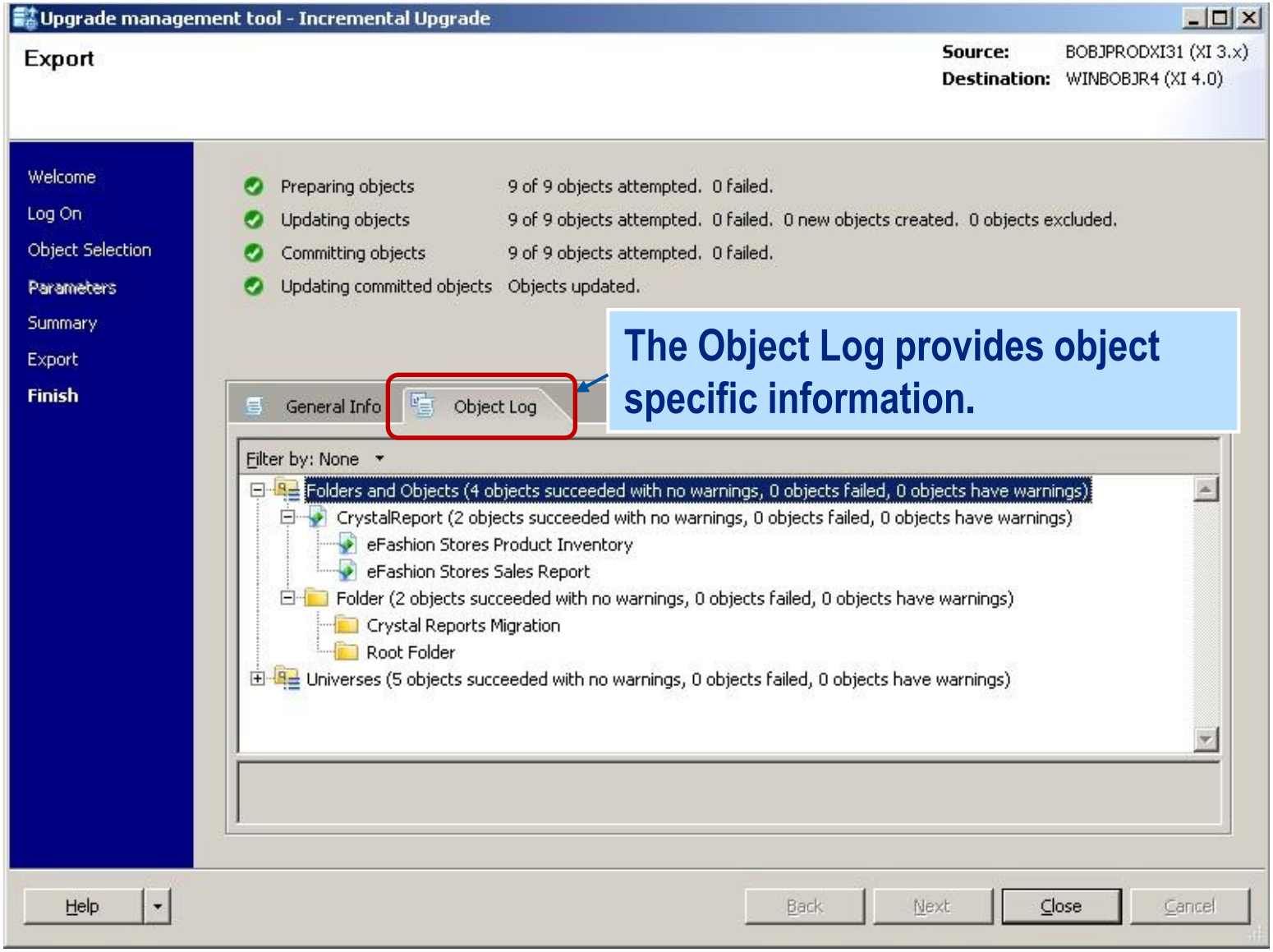


Tools — UMT: Incremental Upgrade, Finish General Information


Upgrade management tool - Incremental Upgrade
Export
Source: BOBJPRODXI31 (XI 3.x)
Destination: WINBOBJR4 (XI 4.0)
Welcome
Log On
Object Selection
Parameters
Summary
Export
Finish
Preparing objects 9 of 9 objects attempted. 0 failed.
Updating objects 9 of 9 objects attempted. 0 failed. 0 new objects created. 0 objects excluded.
Committing objects 9 of 9 objects attempted. 0 failed.
Updating committed objects Objects updated.
General Info
Object Log
Step "Preparing objects" started.
Step finished.
9 of 9 objects attempted. 0 failed.
Step "Updating objects" started.
Step finished.
9 of 9 objects attempted. 0 failed. 0 new objects created. 0 objects excluded.
Step "Committing objects" started.
Step finished.
9 of 9 objects attempted. 0 failed.
Step "Updating committed objects" started.
Step finished.
Objects updated.
The upgrade log can be located at: C:\Program Files (x86)\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\L
Help
Back
Next
Close
Cancel

Tabbed information helps you quickly identify any problems that may have occurred.

Tools — UMT: Incremental Upgrade, Finish Object Log


Upgrade management tool - Incremental Upgrade
Export
Source: BOBJPRODXI31 (XI 3.x)
Destination: WINBOBJR4 (XI 4.0)
Welcome
Log On
Object Selection
Parameters
Summary
Export
Finish
Preparing objects 9 of 9 objects attempted. 0 failed.
Updating objects 9 of 9 objects attempted. 0 failed. 0 new objects created. 0 objects excluded.
Committing objects 9 of 9 objects attempted. 0 failed.
Updating committed objects Objects updated.
The Object Log provides object specific information.
General Info
Object Log
Filter by: None
Folders and Objects (4 objects succeeded with no warnings, 0 objects failed, 0 objects have warnings)
CrystalReport (2 objects succeeded with no warnings, 0 objects failed, 0 objects have warnings)
eFashion Stores Product Inventory
eFashion Stores Sales Report
Folder (2 objects succeeded with no warnings, 0 objects failed, 0 objects have warnings)
Crystal Reports Migration
Root Folder
Universes (5 objects succeeded with no warnings, 0 objects failed, 0 objects have warnings)
Help
Back
Next
Close
Cancel

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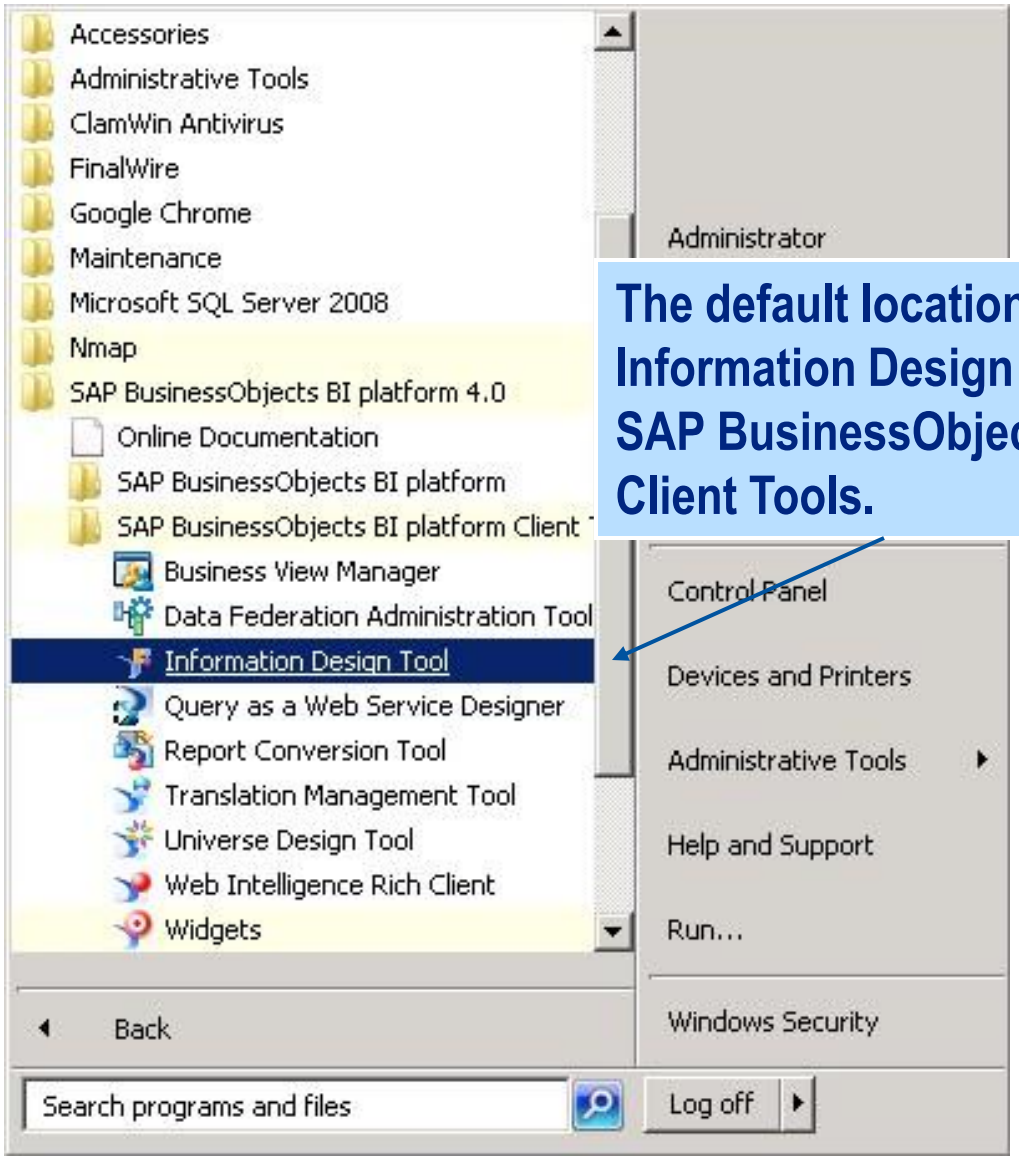
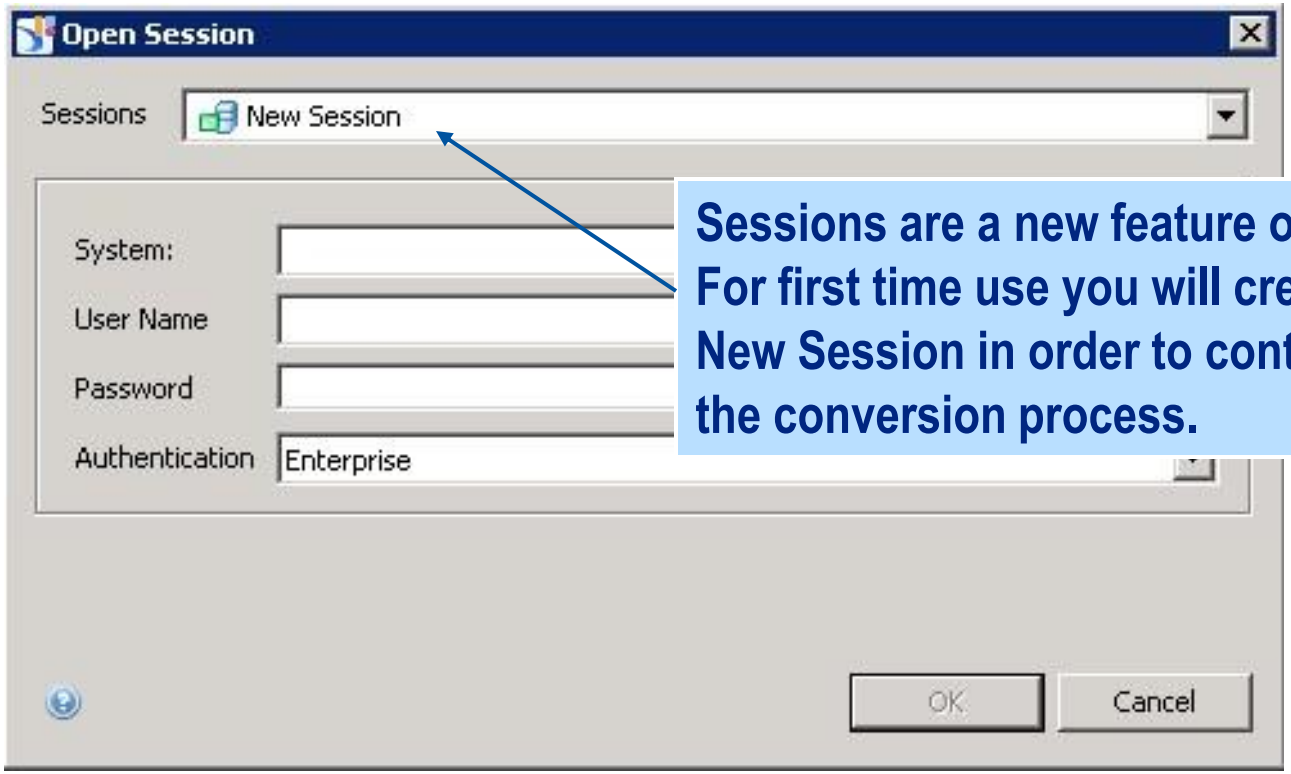
Tools — Information Design Tool (IDT)

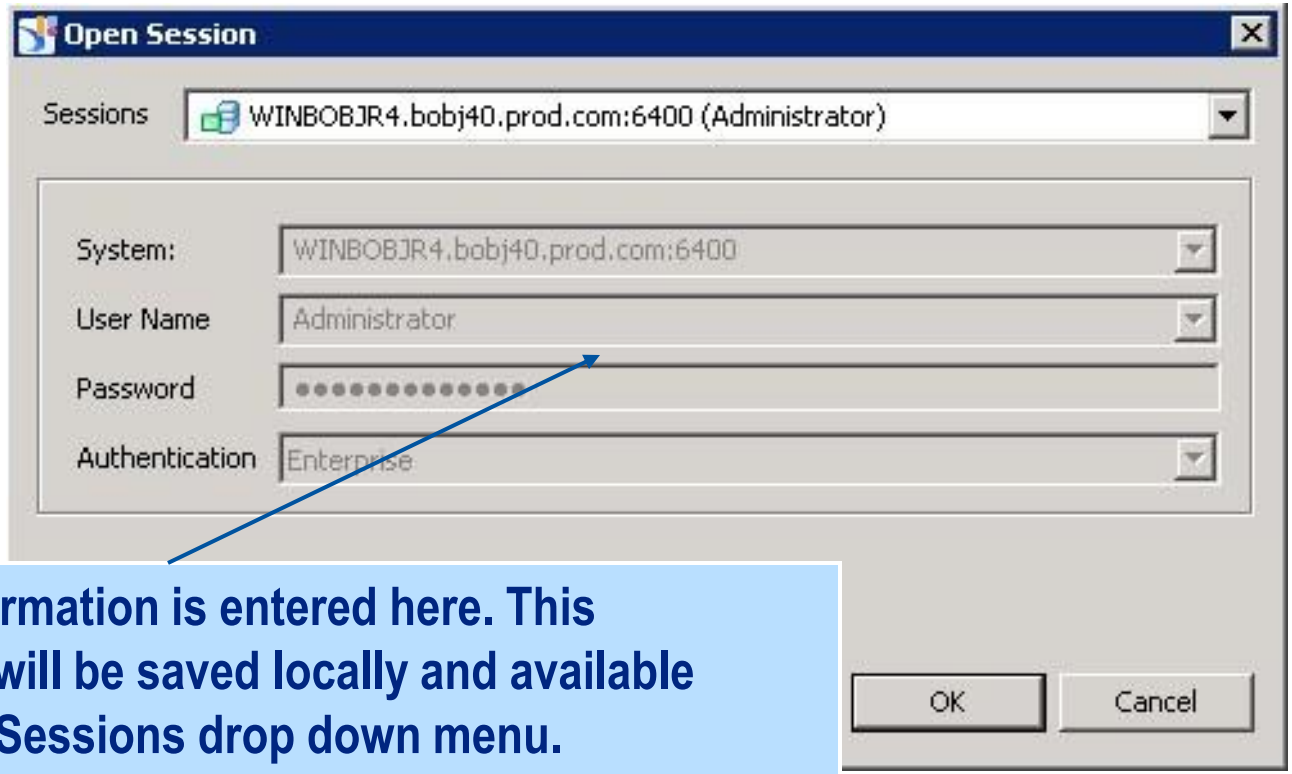


The default location of the Information Design Tool is under SAP BusinessObjects BI platform Client Tools.

Tools — IDT: Open Session

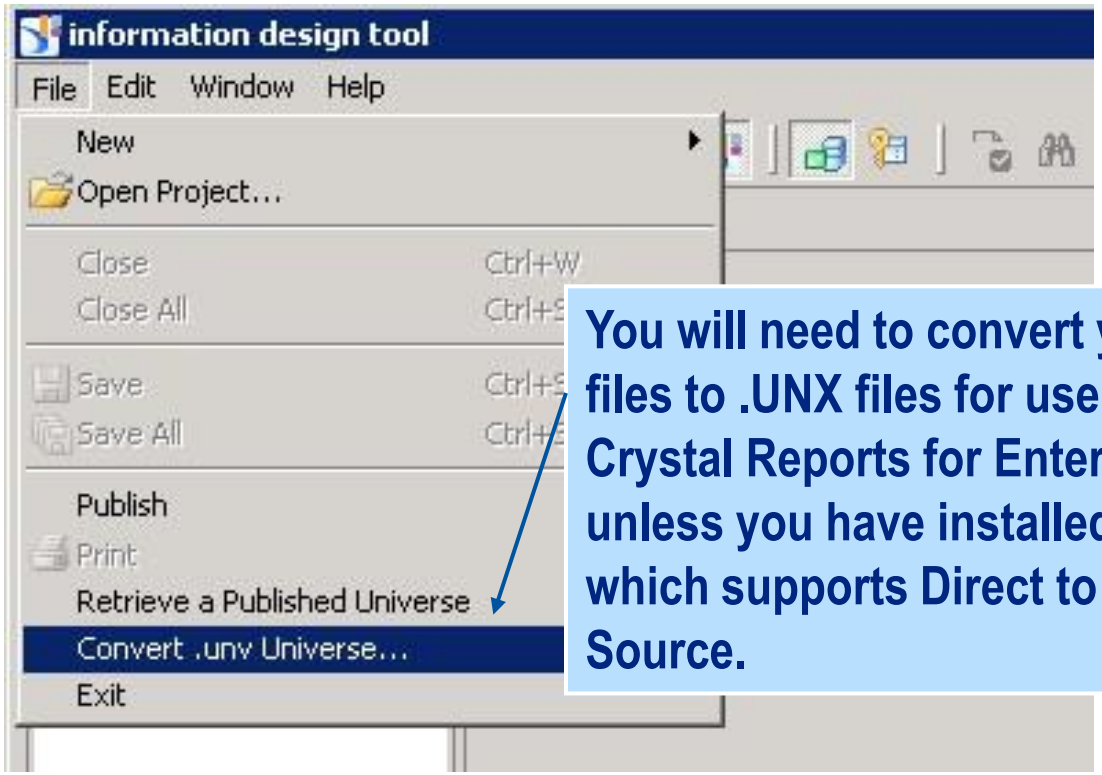


Tools — IDT: Session Information



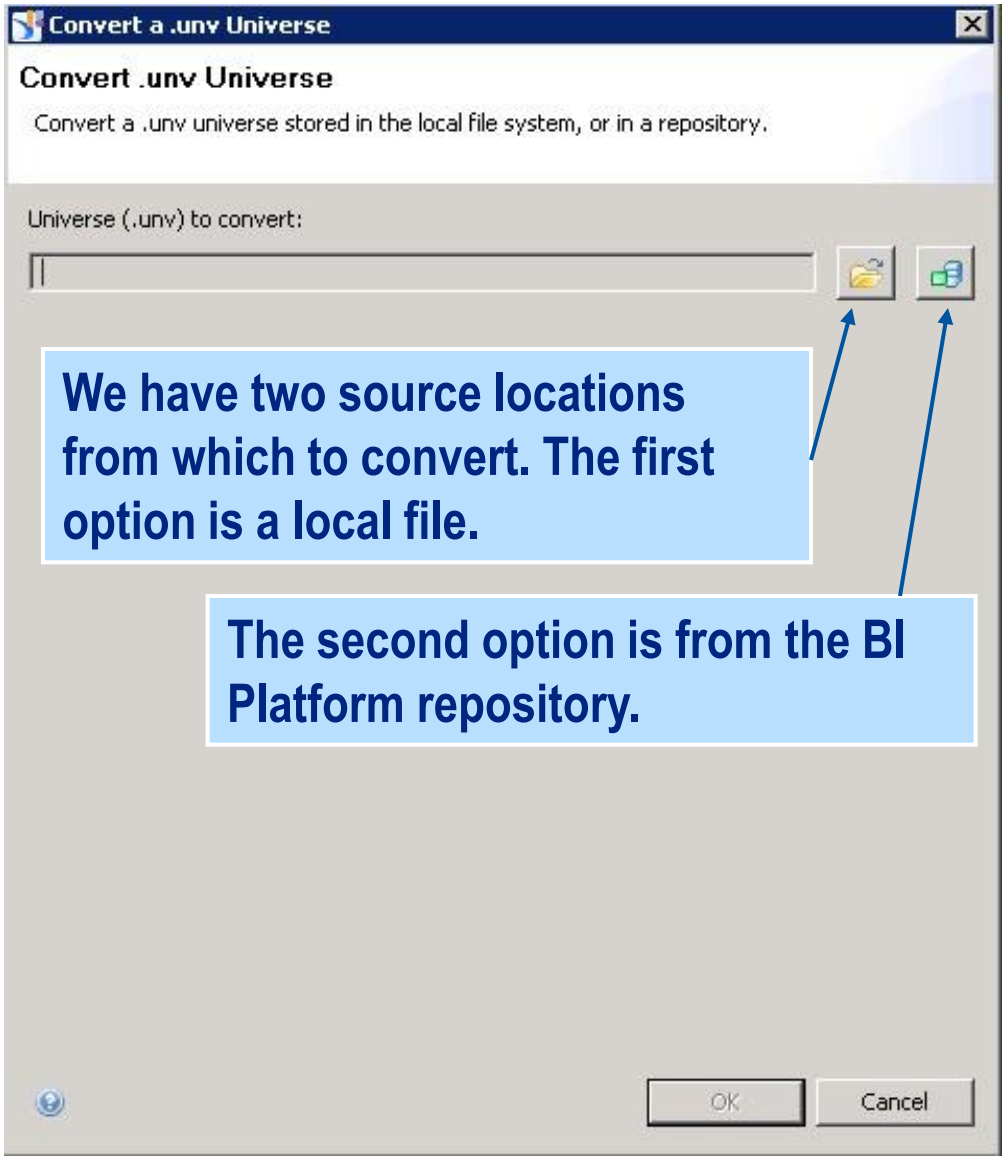
Session information is entered here. This information will be saved locally and available through the Sessions drop down menu.

Tools — IDT: Converting a Universe

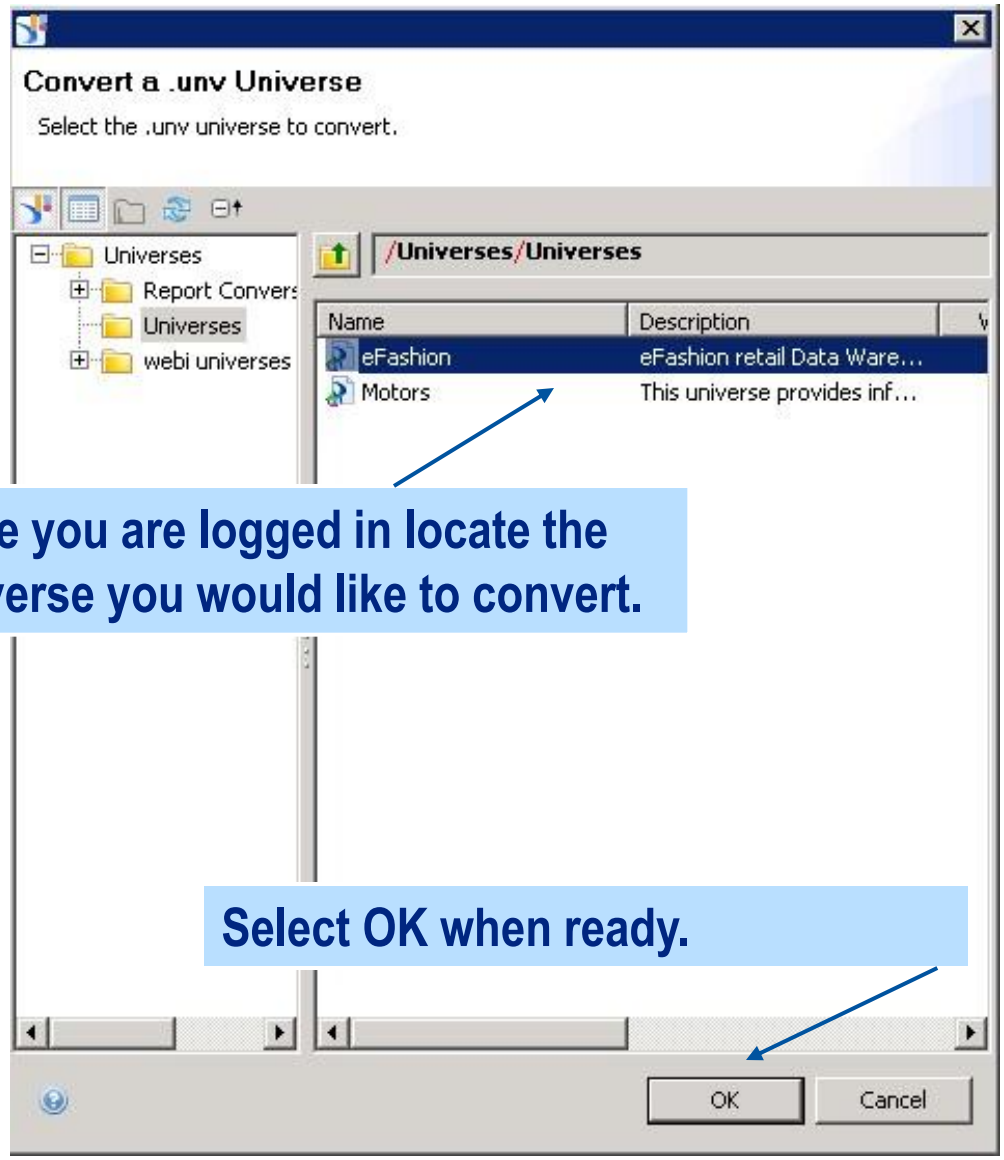


You will need to convert your .UNV files to .UNX files for use with Crystal Reports for Enterprise unless you have installed FP4 which supports Direct to Data Source.

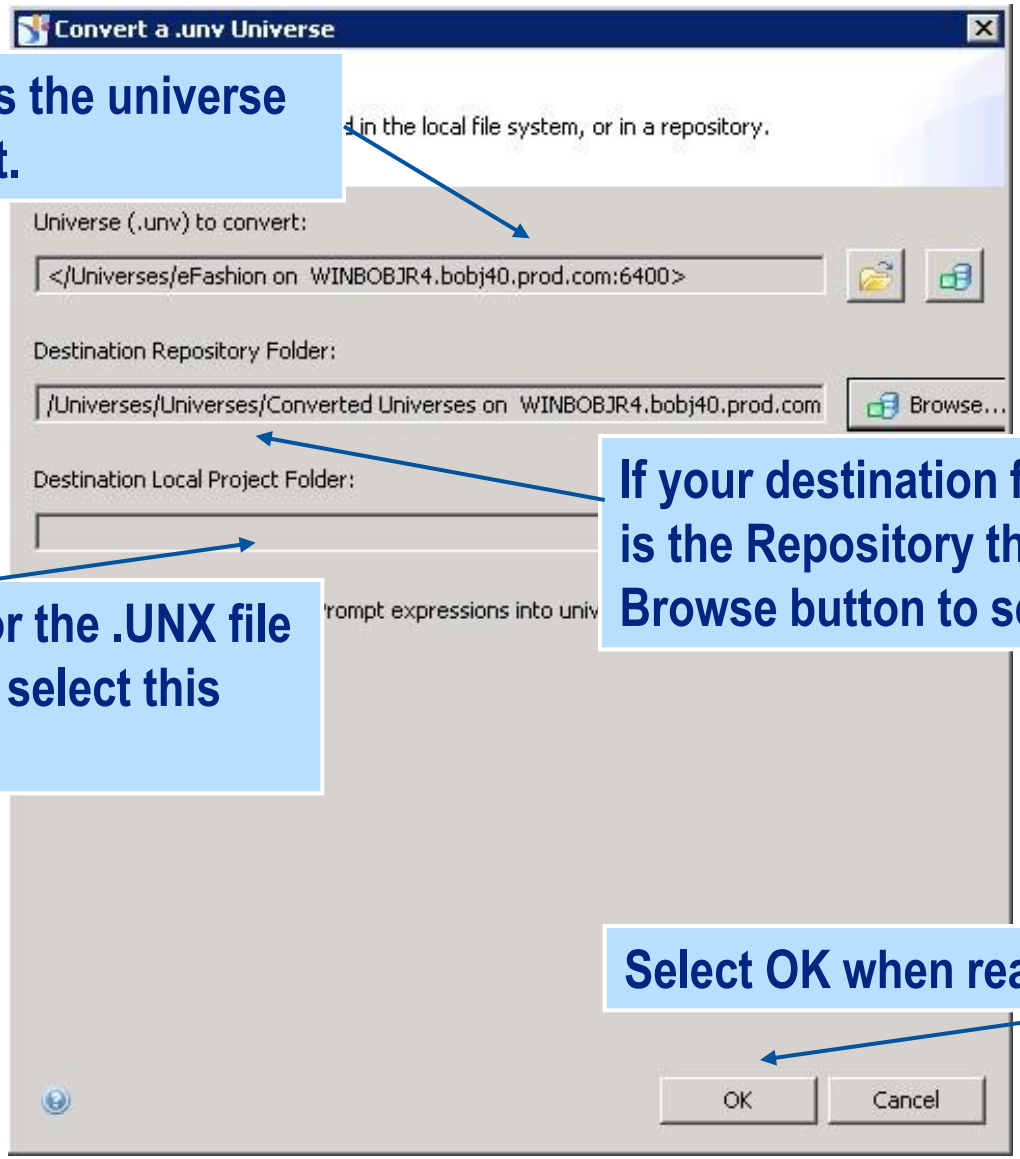
Tools — IDT: Universe Source


Convert a .unv Universe
Convert .unv Universe
Convert a .unv universe stored in the local file system, or in a repository.
Universe (.unv) to convert:
We have two source locations from which to convert. The first option is a local file.
The second option is from the BI Platform repository.
OK
Cancel

Tools — IDT: Universe Selection



Tools — IDT: Universe Destination Options



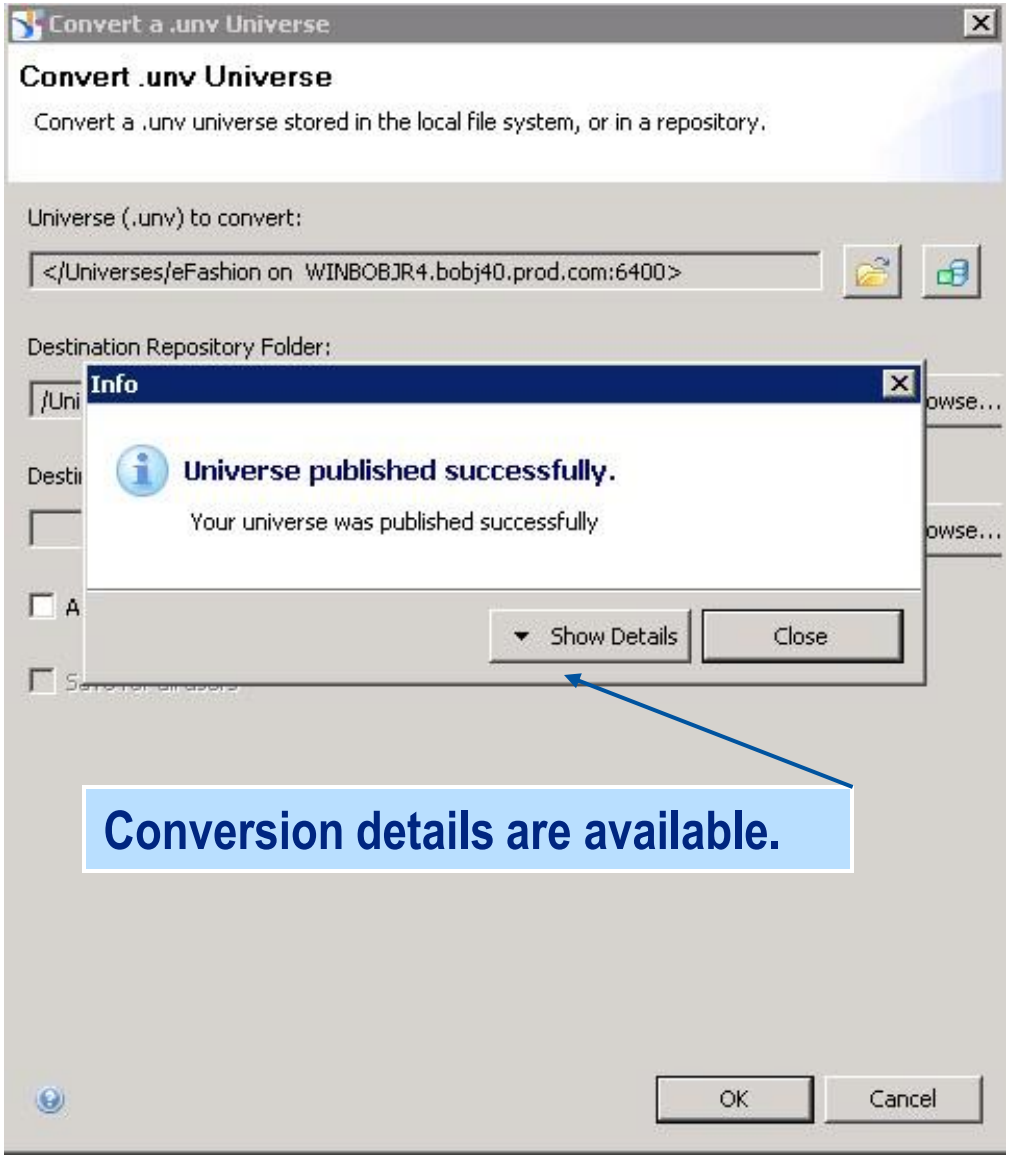
Double check this is the universe you want to convert.

If your destination for the .UNX file is the Repository then select the Browse button to select a folder.

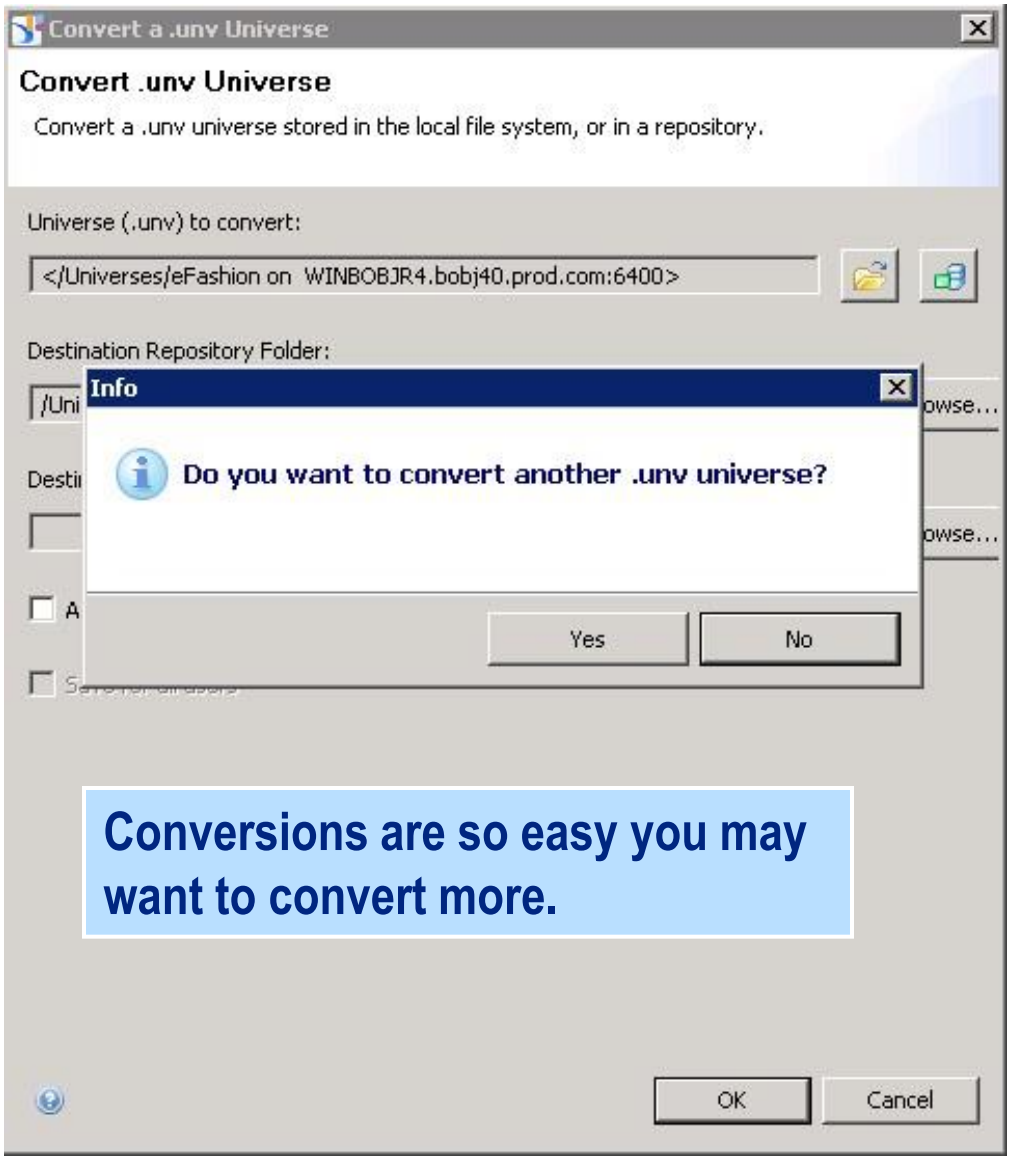
If your destination for the .UNX file is a local folder then select this Browse button.

Select OK when ready.

Tools — IDT: Successful Publication



Tools — Upgrade Management Tool (UMT)

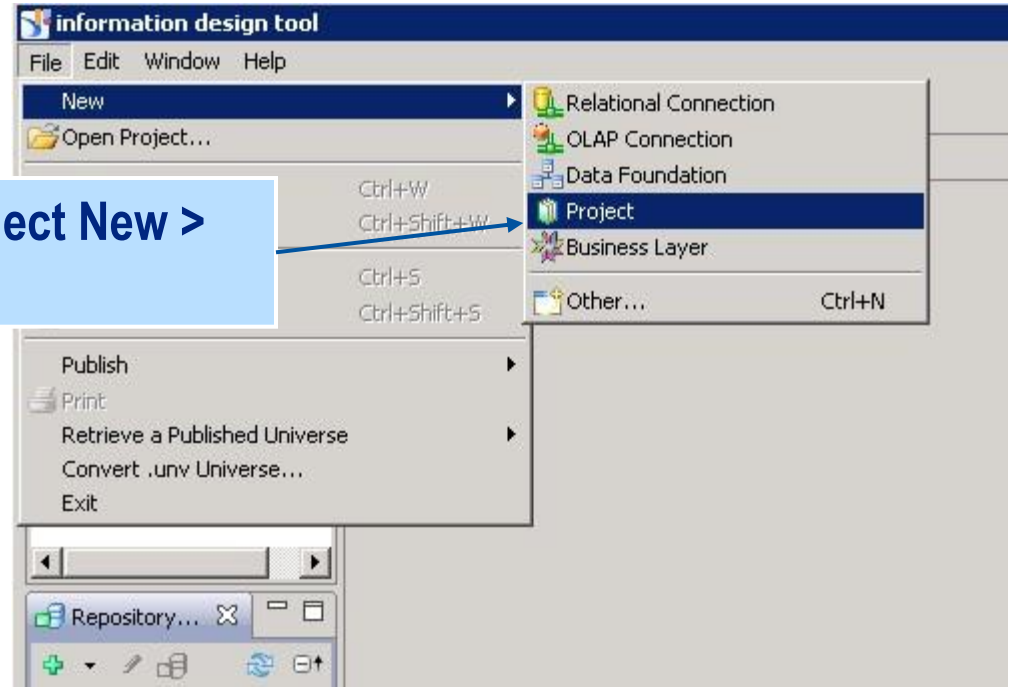


Conversions are so easy you may want to convert more.

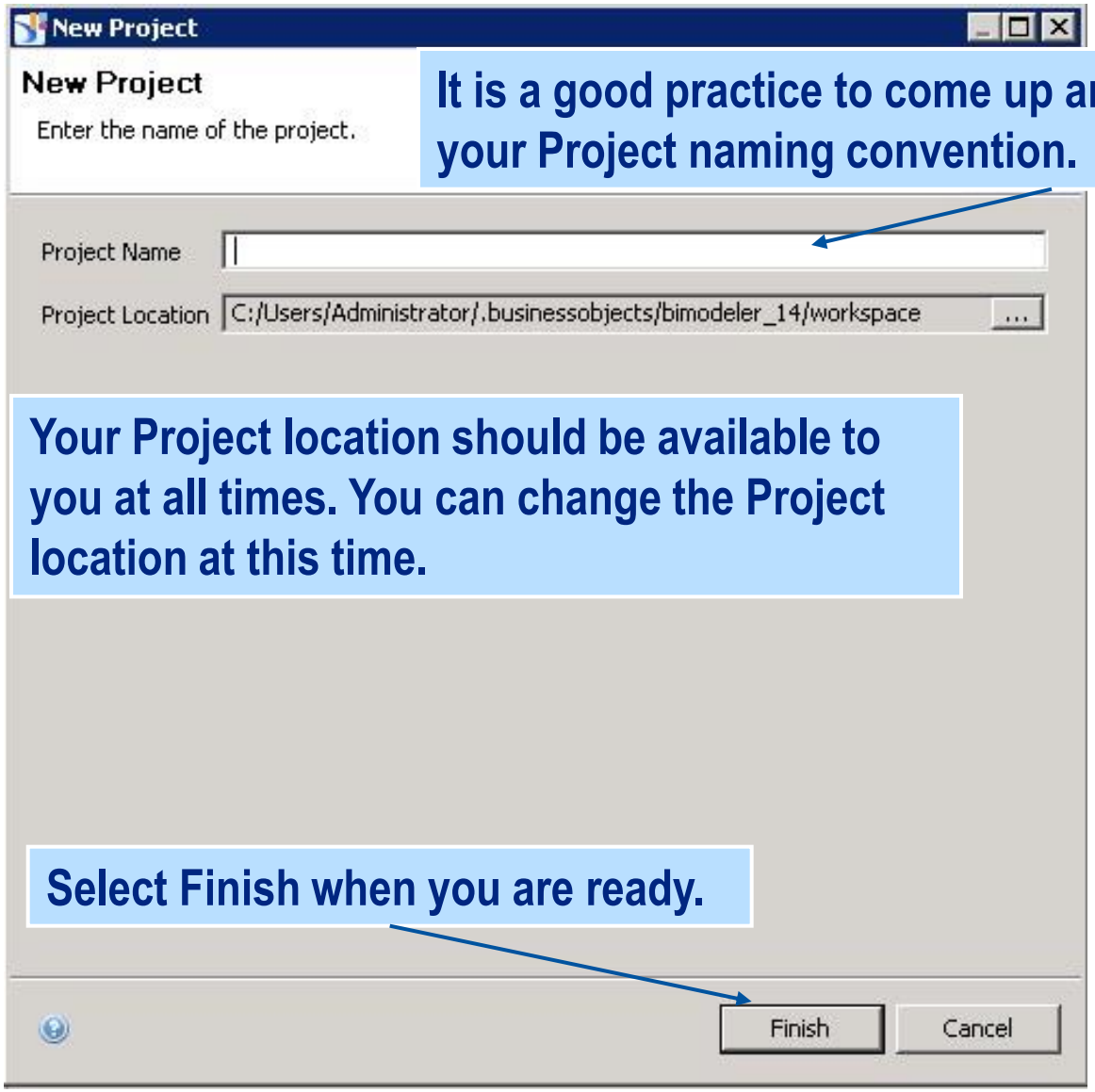
Tools — IDT: Conversion Validation/New Project

It is a best practice to validate the converted universe. To do so you must start a Project.

From the File menu select New > Project.

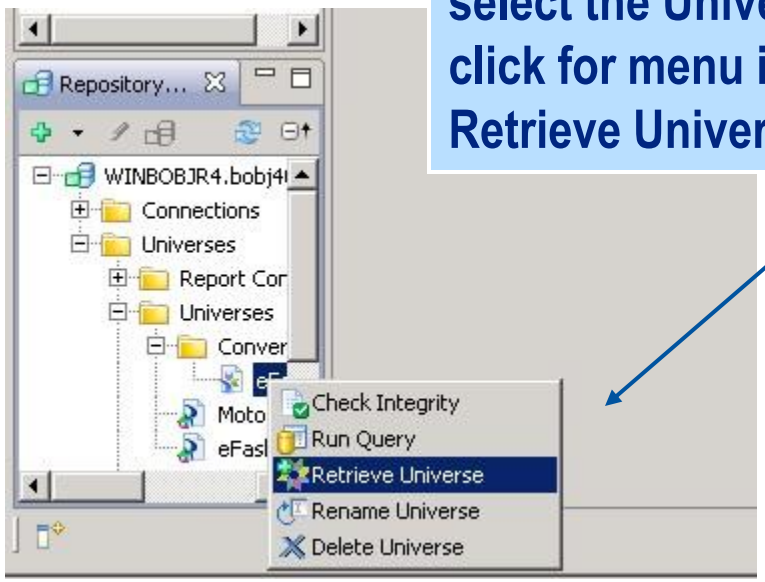


Tools — IDT: Project Name

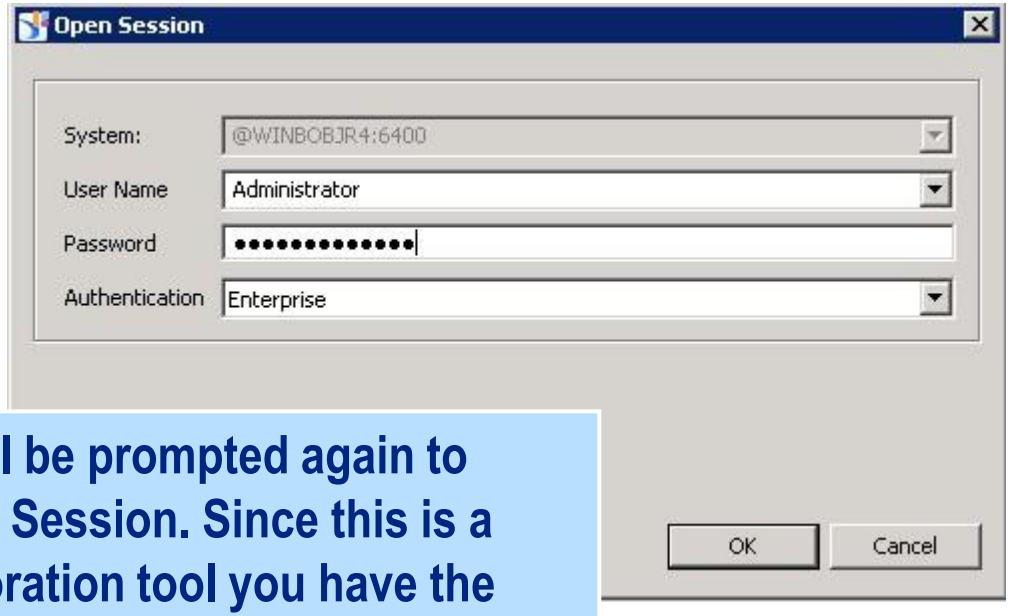

New Project
New Project
Enter the name of the project.
It is a good practice to come up and document your Project naming convention.
Project Name
Project Location
C:/Users/Administrator/.businessobjects/bimodeler_14/workspace
...
Your Project location should be available to you at all times. You can change the Project location at this time.
Select Finish when you are ready.
Finish
Cancel

Tools — IDT: Retrieve Universe

In the Repository Objects pane select the Universe and then right click for menu items. Select Retrieve Universe.

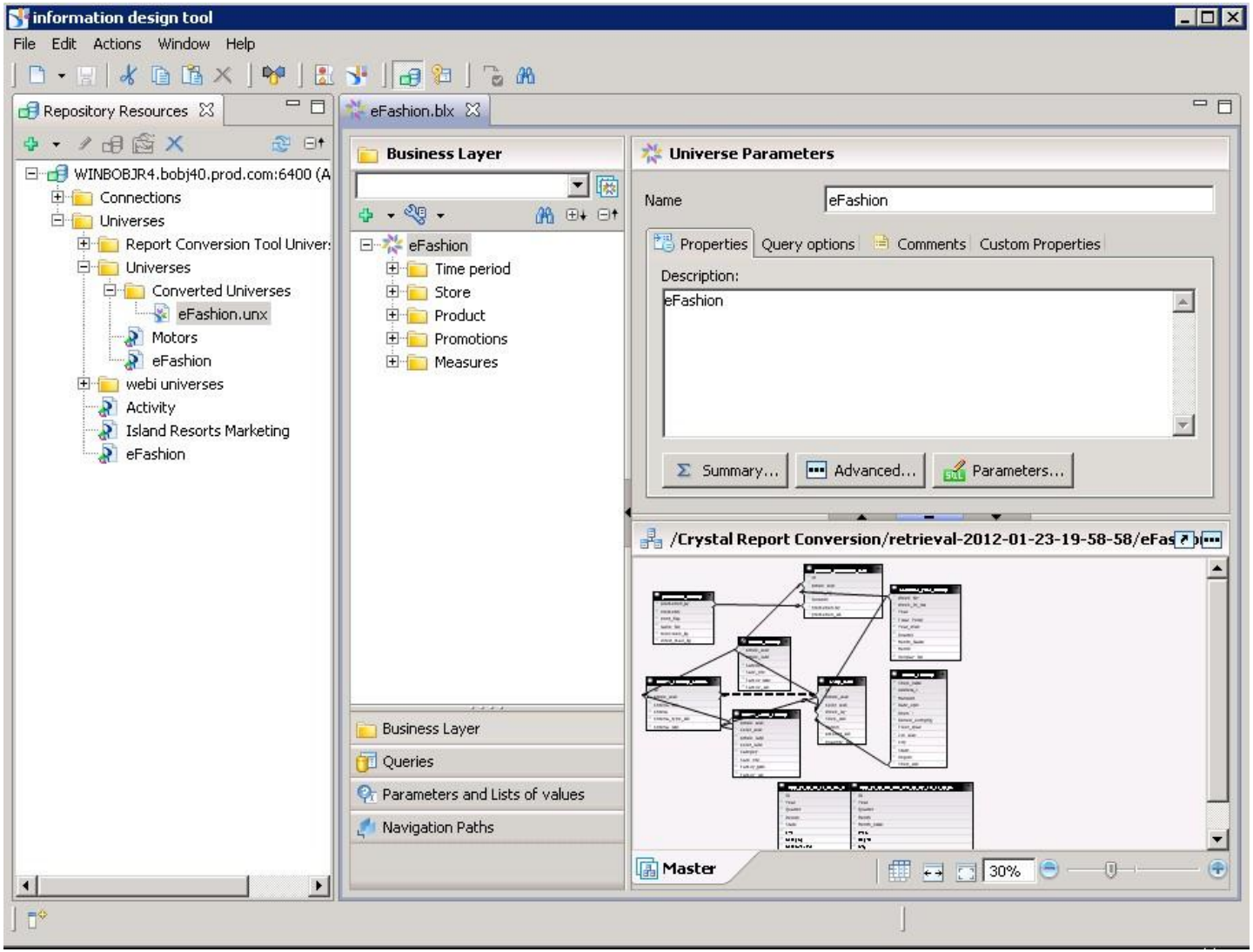


Tools — IDT: Open Session Log On

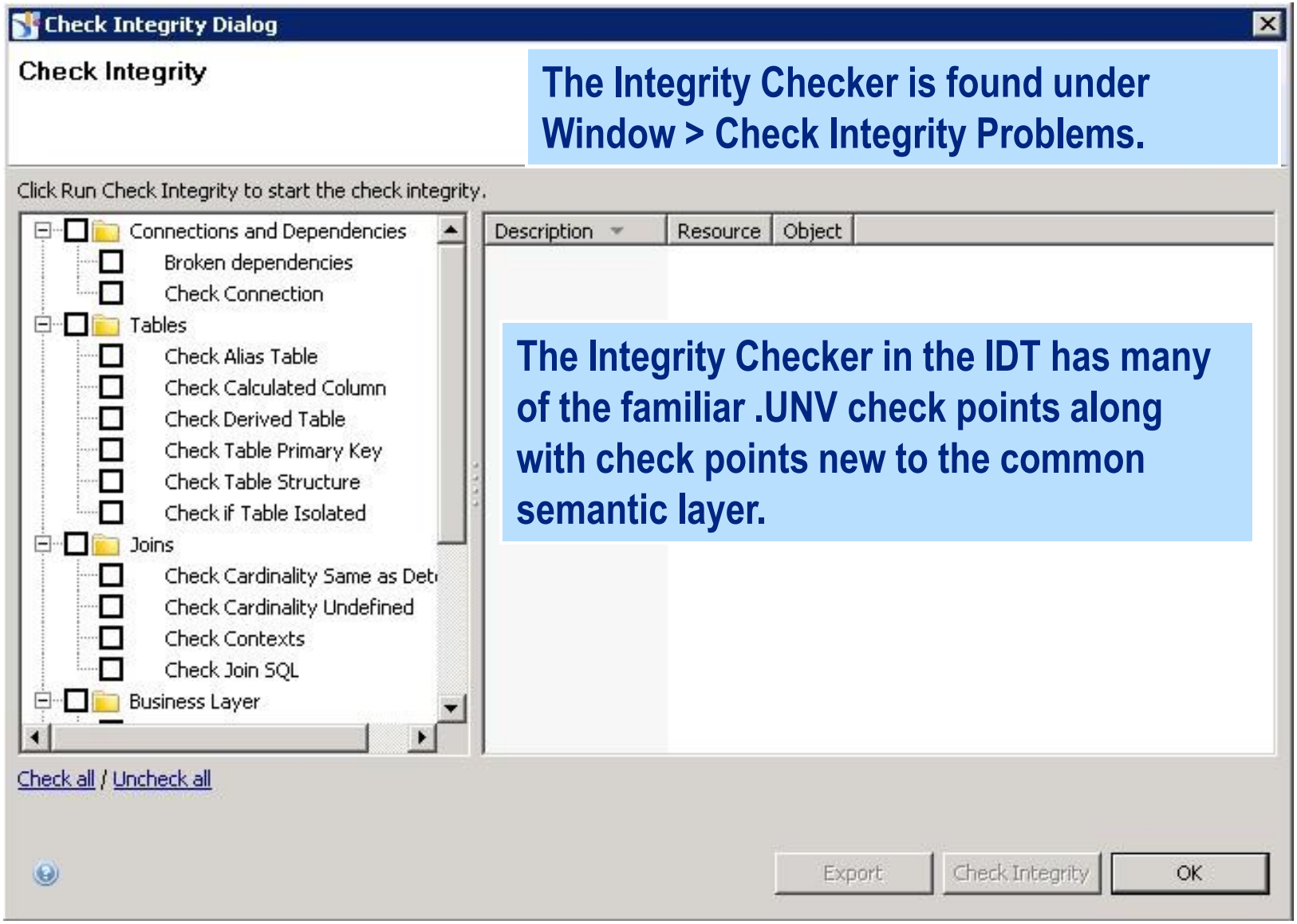


You will be prompted again to Open a Session. Since this is a collaboration tool you have the ability to pull from and work in multiple systems.

Tools — IDT: Retrieved Universe



Tools — IDT: Integrity Checker Dialog



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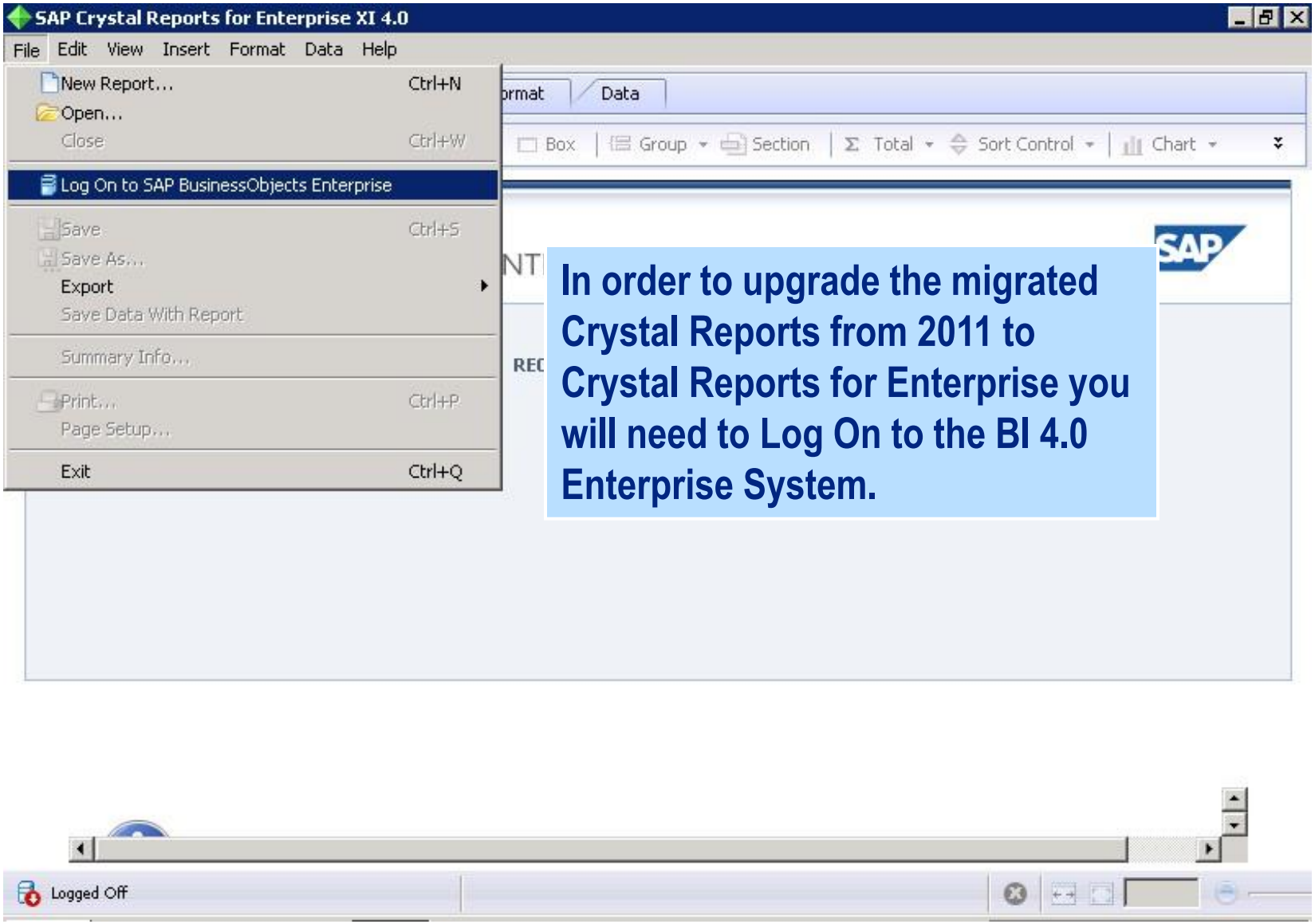
- Wrap-up

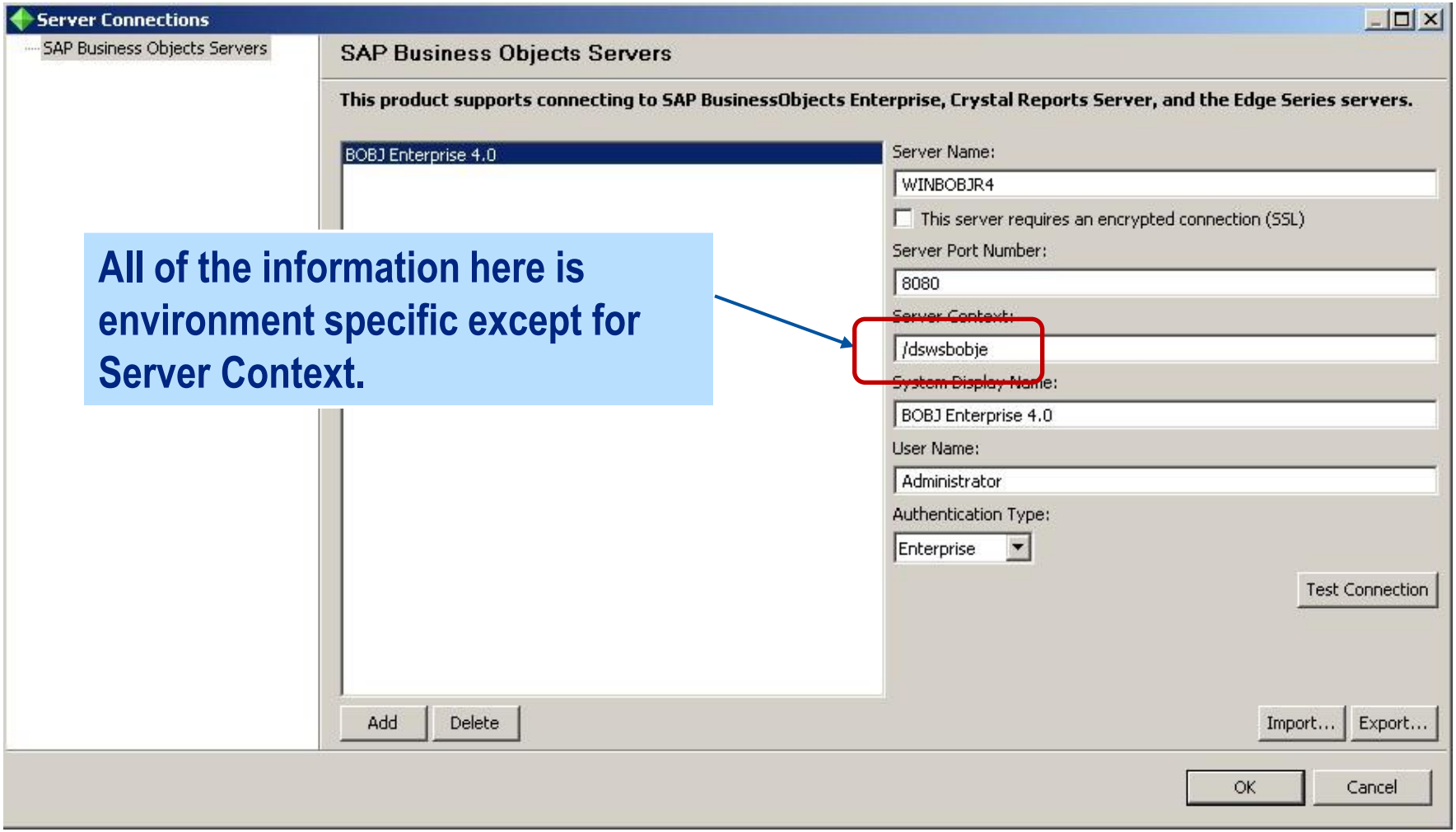
Tools — CRE: Log On



Tools — CRE, Server Information

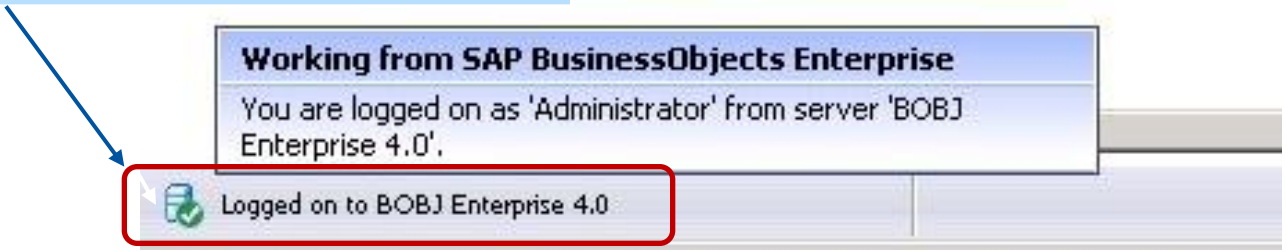
As this is our first time logging on you will need to provide Server Connection information.

Tools — CRE, Server Connections

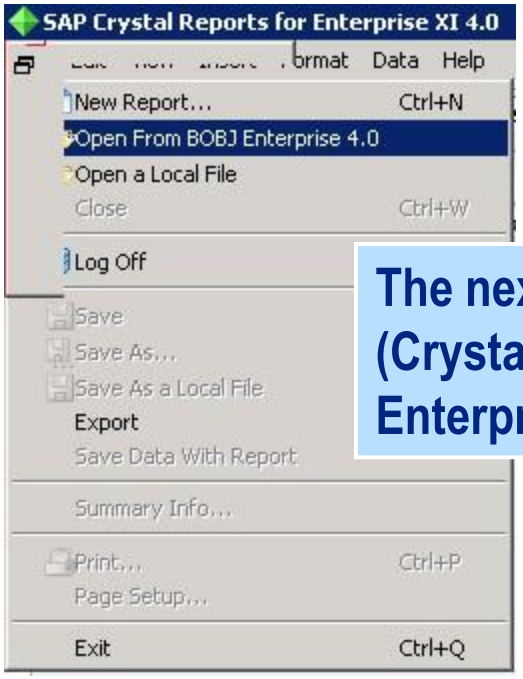


Tools — CRE: Connection Status

The lower left corner of Crystal Reports for Enterprise indicates if you are working locally or logged on to an Enterprise system.

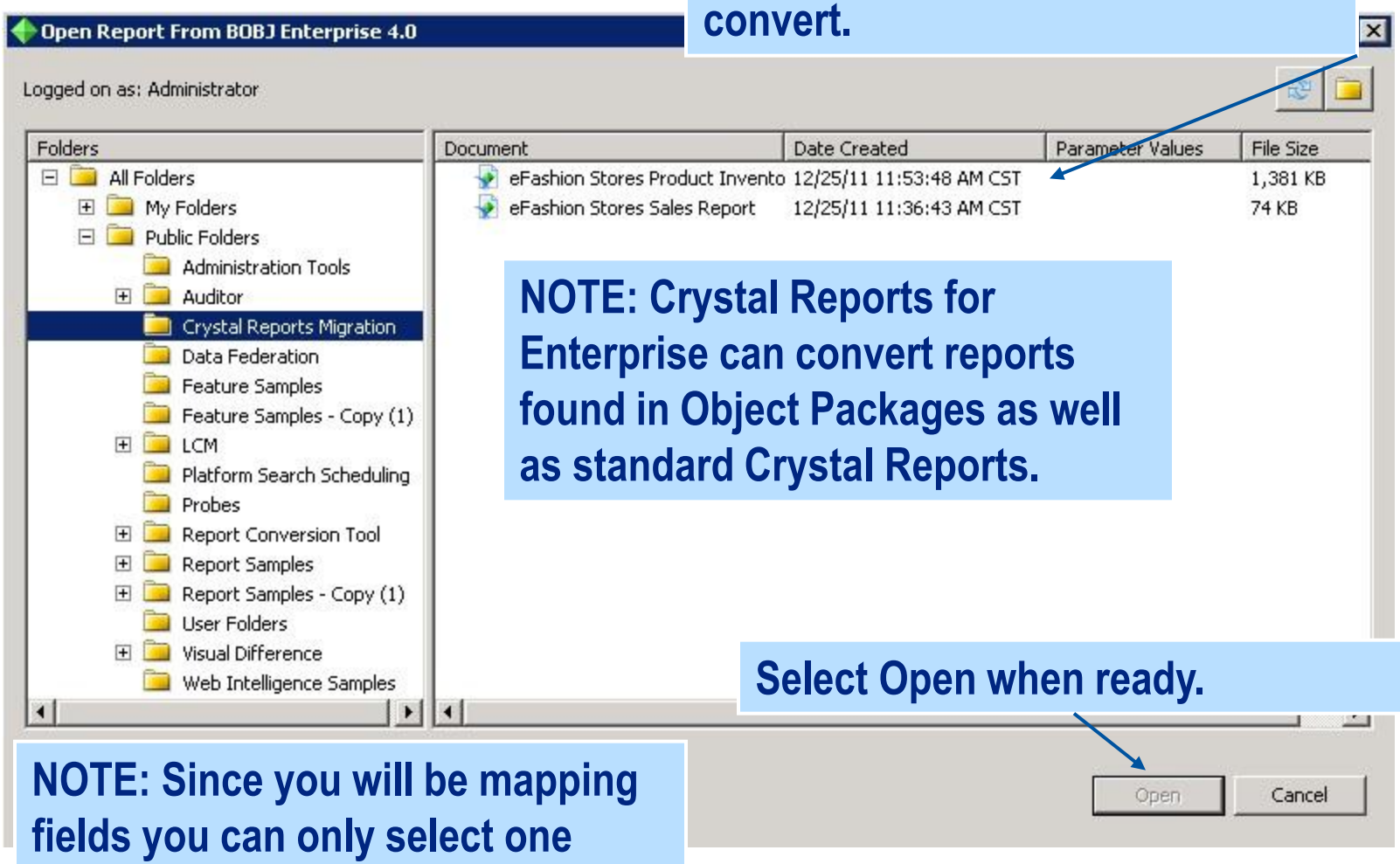

Working from SAP BusinessObjects Enterprise
You are logged on as 'Administrator' from server 'BOBJ Enterprise 4.0'.
Logged on to BOBJ Enterprise 4.0

Tools – CRE, —Open File

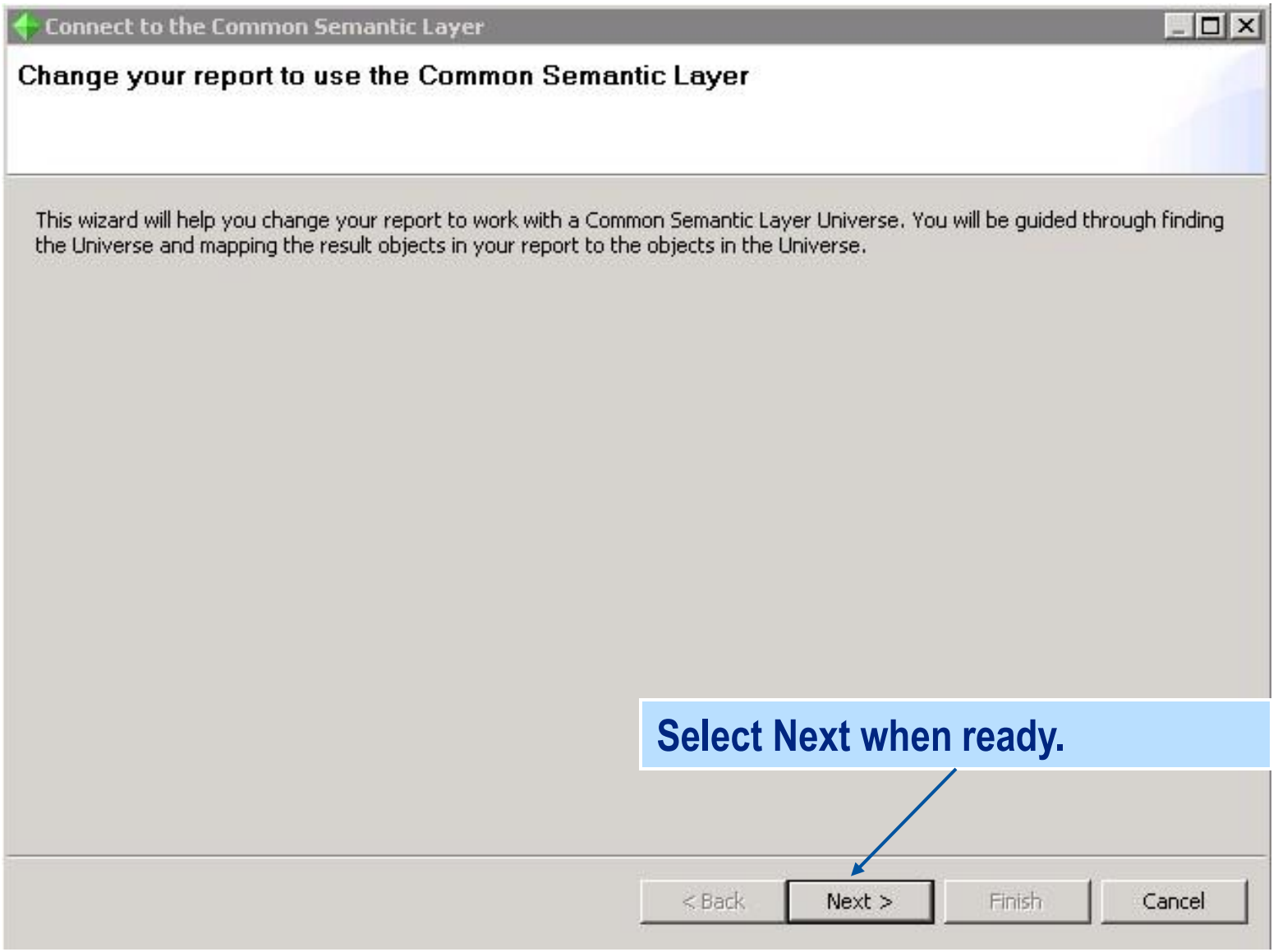


The next step is to open a file (Crystal Report) from the BI Enterprise 4.0 system.

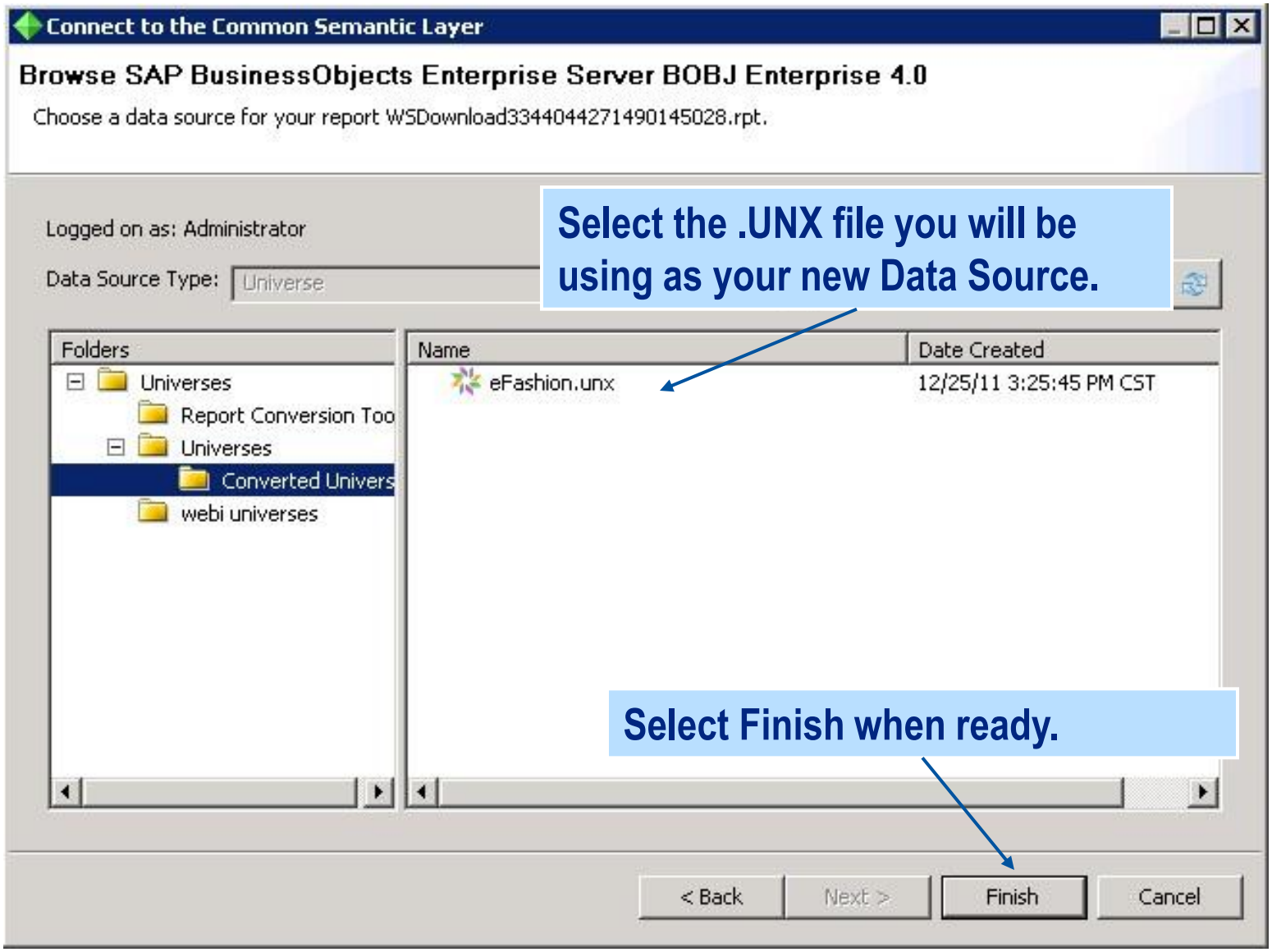
Tools — CRE, Report Selection



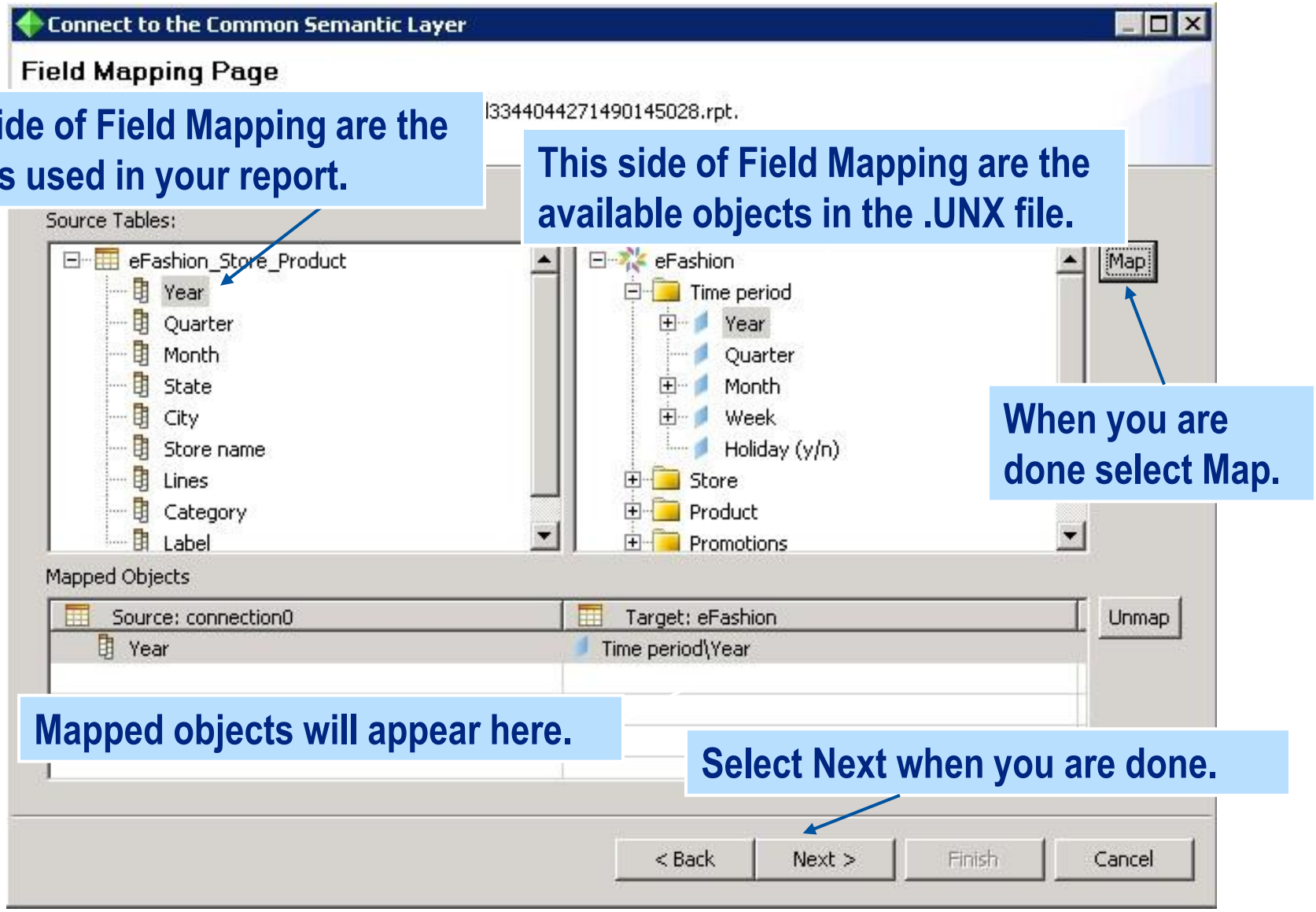
Tools — CRE, Connect to the Common Semantic Layer


Connect to the Common Semantic Layer
Change your report to use the Common Semantic Layer
This wizard will help you change your report to work with a Common Semantic Layer Universe. You will be guided through finding the Universe and mapping the result objects in your report to the objects in the Universe.
Select Next when ready.
< Back
Next >
Finish
Cancel

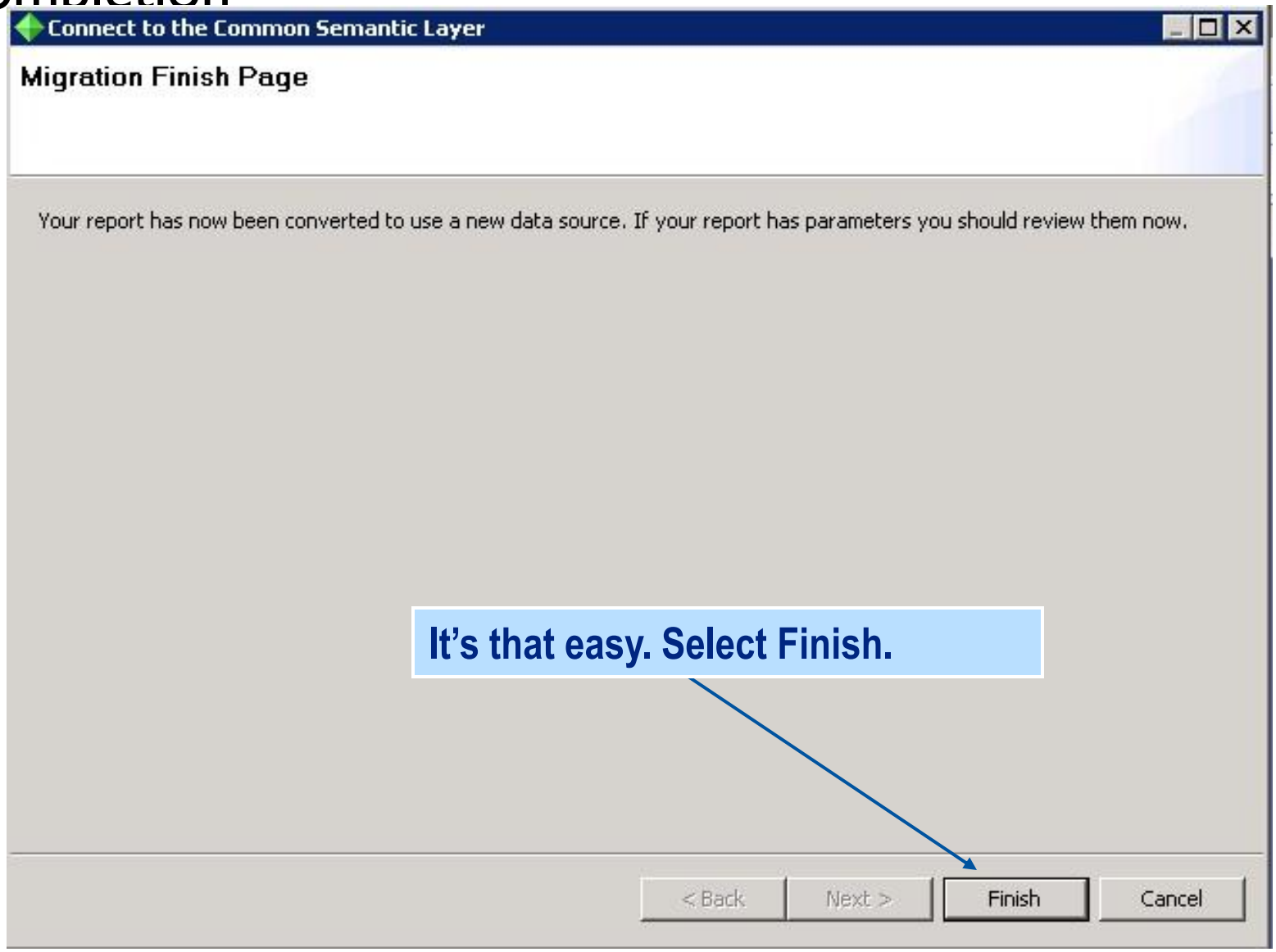
Tools — CRE: UNX Selection



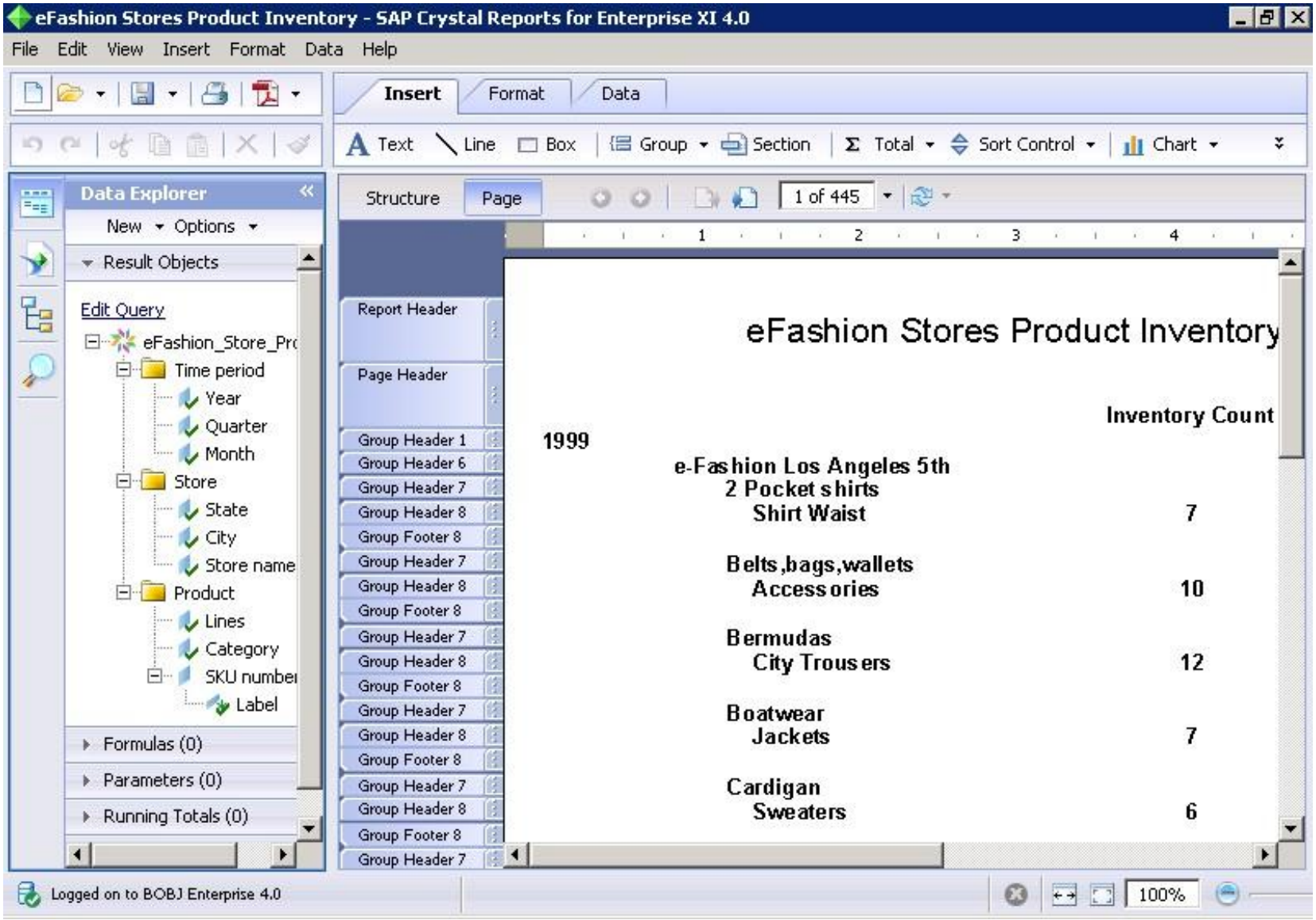
Tools — CRE: Field Mapping Page



Tools — CRE: Data Source and Field Mapping Completion


Connect to the Common Semantic Layer
Migration Finish Page
Your report has now been converted to use a new data source. If your report has parameters you should review them now.
It's that easy. Select Finish.
< Back
Next >
Finish
Cancel

Tools — CRE: Viewing the Converted Report



7 Key Migration Points to Take Home

- Evaluate your current environment
  - Take inventory of your reports and their data sources
- Create a migration plan
  - Decide what, when, and where
    - What reports? Public or Favorites?
    - When are you moving them? All at once?
    - Where? Staging environment?
- Test your migration plan
- Move your reports and their dependencies
- Convert your .UNVs to .UNX
- Upgrade you reports
- Validate reports against each other and enjoy the fruit of your labor

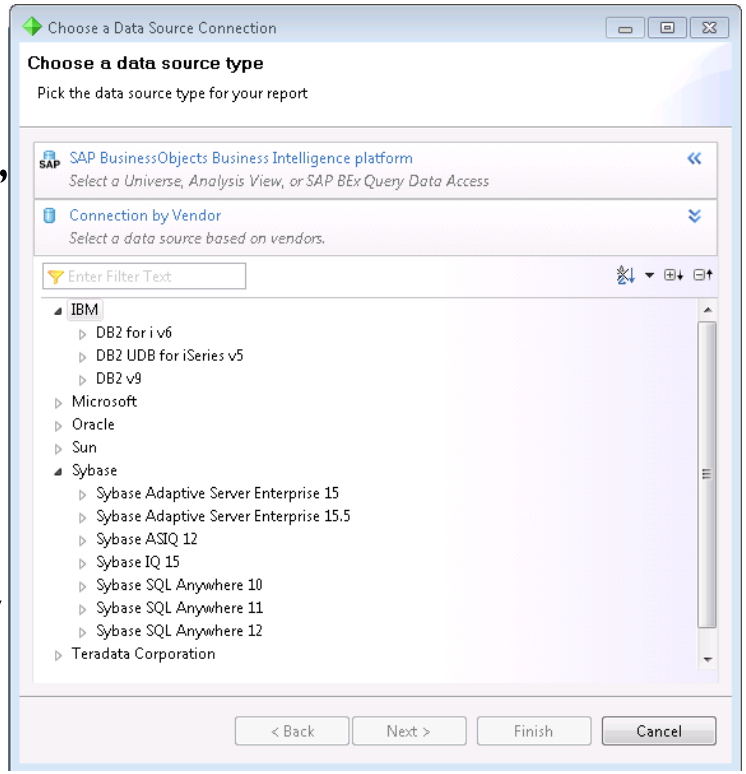
What We'll Cover …

- Planning the Migration
- Migration Options
- Tools Overview
- Upgrade Management Tool
- Information Design Tool
- Crystal Reports for Enterprise
- BusinessObjects SP4
- Demo – Creating Reports with Relational Connections
- Demo – Saving Desktop Reports to the BI Platform
- Wrap-up

Data Sources – Direct to Data Support (as of SP4)

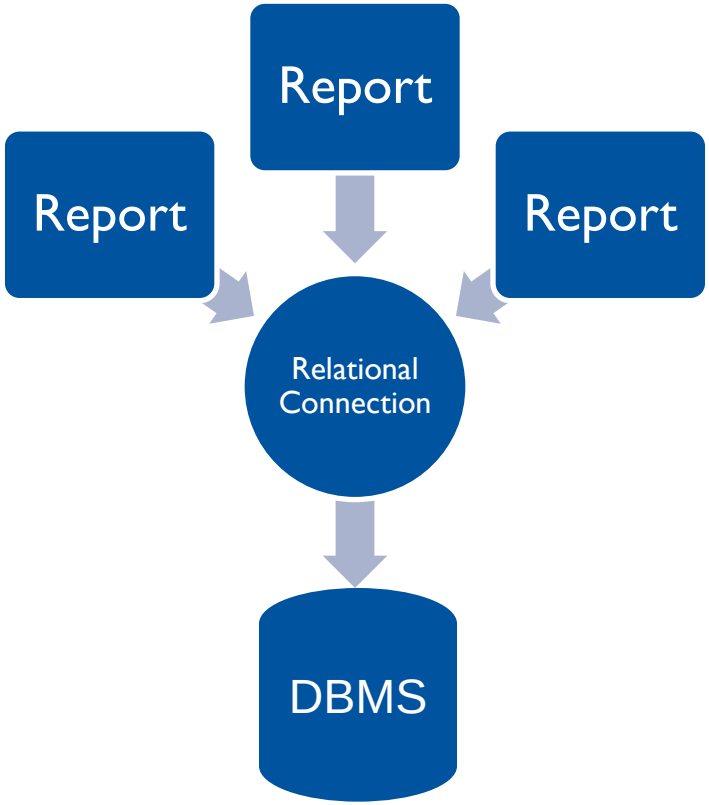
Provide direct connectivity to Enterprise focused data sources without requiring a pre-authored data model.

- Supported data sources
  - Generic ODBC, JDBC, OLEDB
  - Oracle, MySQL, DB2, Microsoft SQL Server, Microsoft Access, Microsoft Excel, Sybase, Teradata, SAP HANA
  - Displays previously created connections
  - New data mapping UI
- Lower TCO with shared data connections
  - Reports that run on the BI Platform now utilize shared data connections instead of having data connection information stored per report.

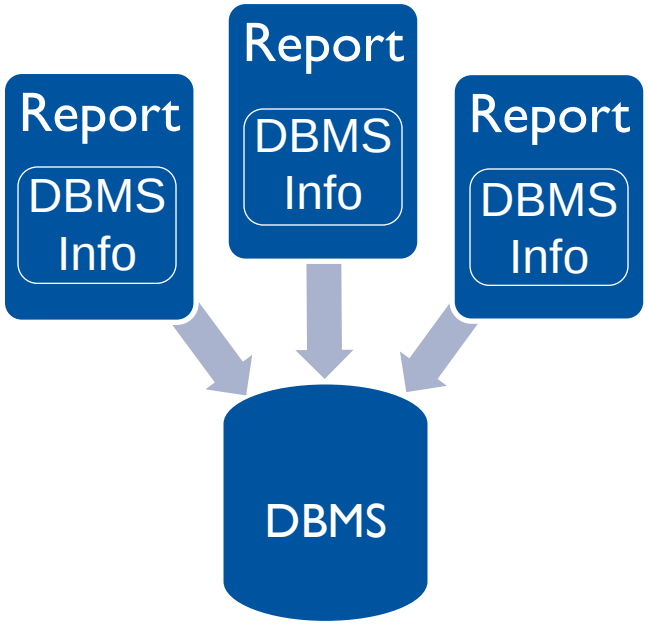


How it Works - Reports Managed by the BI Platform

Crystal Reports For Enterprise



Crystal Reports 2011



CR for Enterprise reports saved to BI Platform use Relational Connection objects to hold connection info. CR 2011 reports continue to store connection info in each report.

Simplifying Enterprise Reporting
SAP Crystal Reports for Enterprise with Relational Connections

- Simplified Authoring
  - Create reports directly off relational data sources without first modeling the data
  - Connect to data in a few clicks, without knowing database system details
- Simplified Deployment
  - Maintain DBMS middleware in a single place (on server, not on designer desktop)
  - Ease Life Cycle Management
- Simplified Administration
  - Change DBMS connections for multiple reports all at once
  - Reduce report maintenance costs

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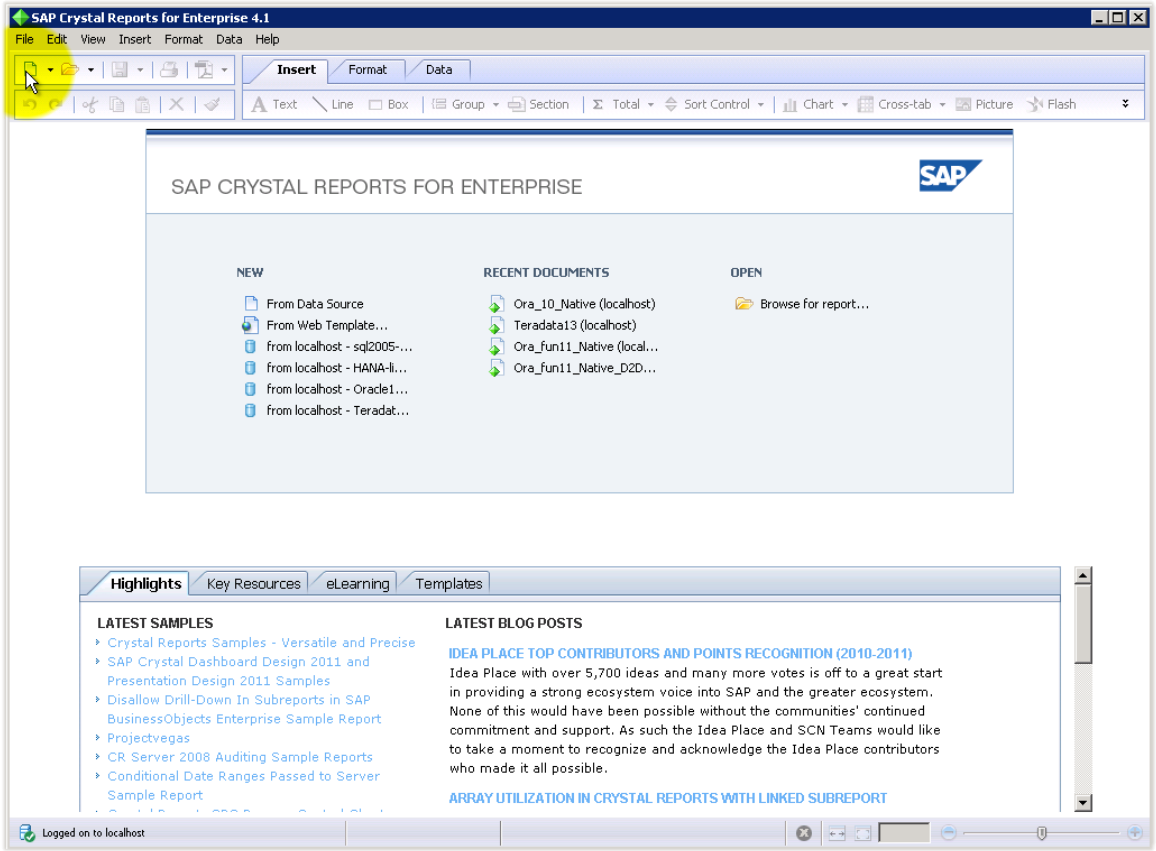
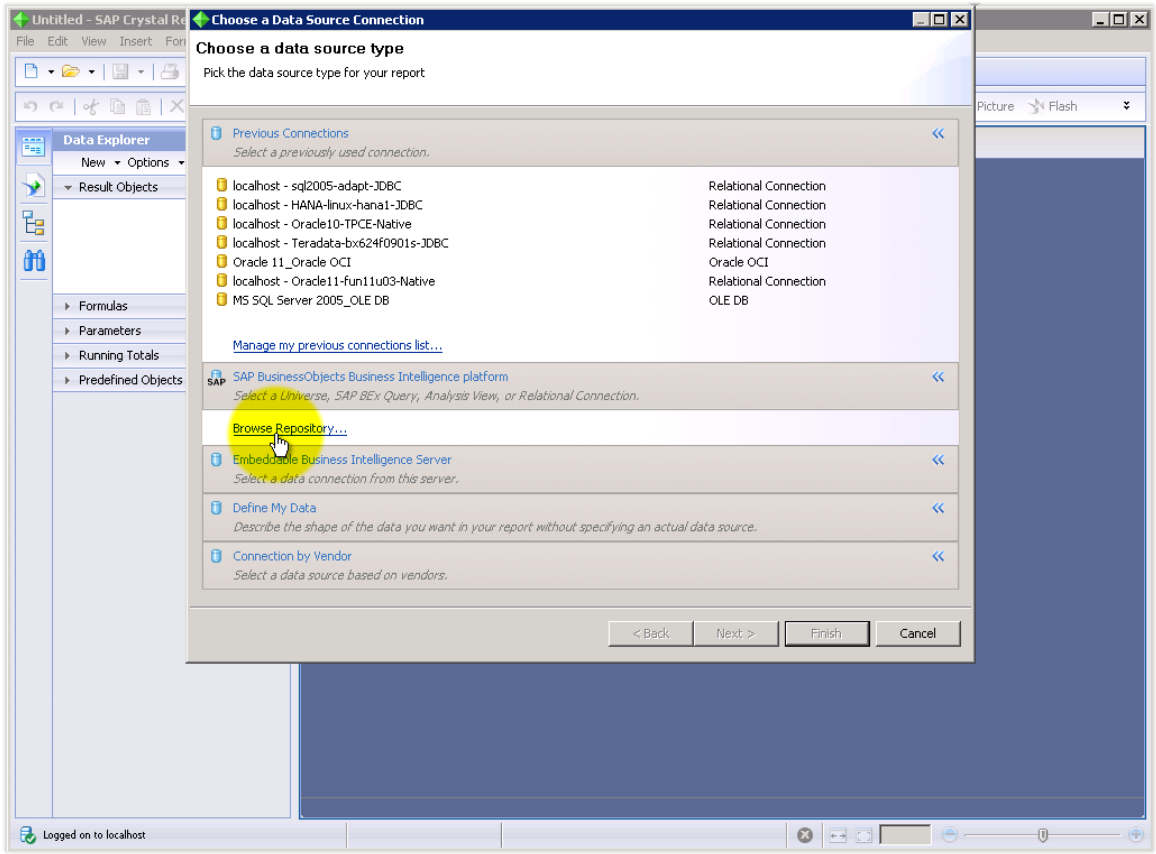
Demo

- Create a new report
  - Click the new report icon


SAP Crystal Reports for Enterprise 4.1
File Edit View Insert Format Data Help
Insert Format Data
Text Line Box Group Section Total Sort Control Chart Cross-tab Picture Flash
SAP CRYSTAL REPORTS FOR ENTERPRISE
NEW
From Data Source
From Web Template...
from localhost - sql2005-...
from localhost - HANA-li...
from localhost - Oracle1...
from localhost - Teradat...
RECENT DOCUMENTS
Ora_10_Native (localhost)
Teradata13 (localhost)
Ora_fun11_Native (local...
Ora_fun11_Native_D2D...
OPEN
Browse for report...
Highlights
Key Resources
eLearning
Templates
LATEST SAMPLES
Crystal Reports Samples - Versatile and Precise
SAP Crystal Dashboard Design 2011 and Presentation Design 2011 Samples
Disallow Drill-Down In Subreports in SAP BusinessObjects Enterprise Sample Report
Projectvegas
CR Server 2008 Auditing Sample Reports
Conditional Date Ranges Passed to Server Sample Report
LATEST BLOG POSTS
IDEA PLACE TOP CONTRIBUTORS AND POINTS RECOGNITION (2010-2011)
Idea Place with over 5,700 ideas and many more votes is off to a great start in providing a strong ecosystem voice into SAP and the greater ecosystem. None of this would have been possible without the communities' continued commitment and support. As such the Idea Place and SCN Teams would like to take a moment to recognize and acknowledge the Idea Place contributors who made it all possible.
ARRAY UTILIZATION IN CRYSTAL REPORTS WITH LINKED SUBREPORT
Logged on to localhost

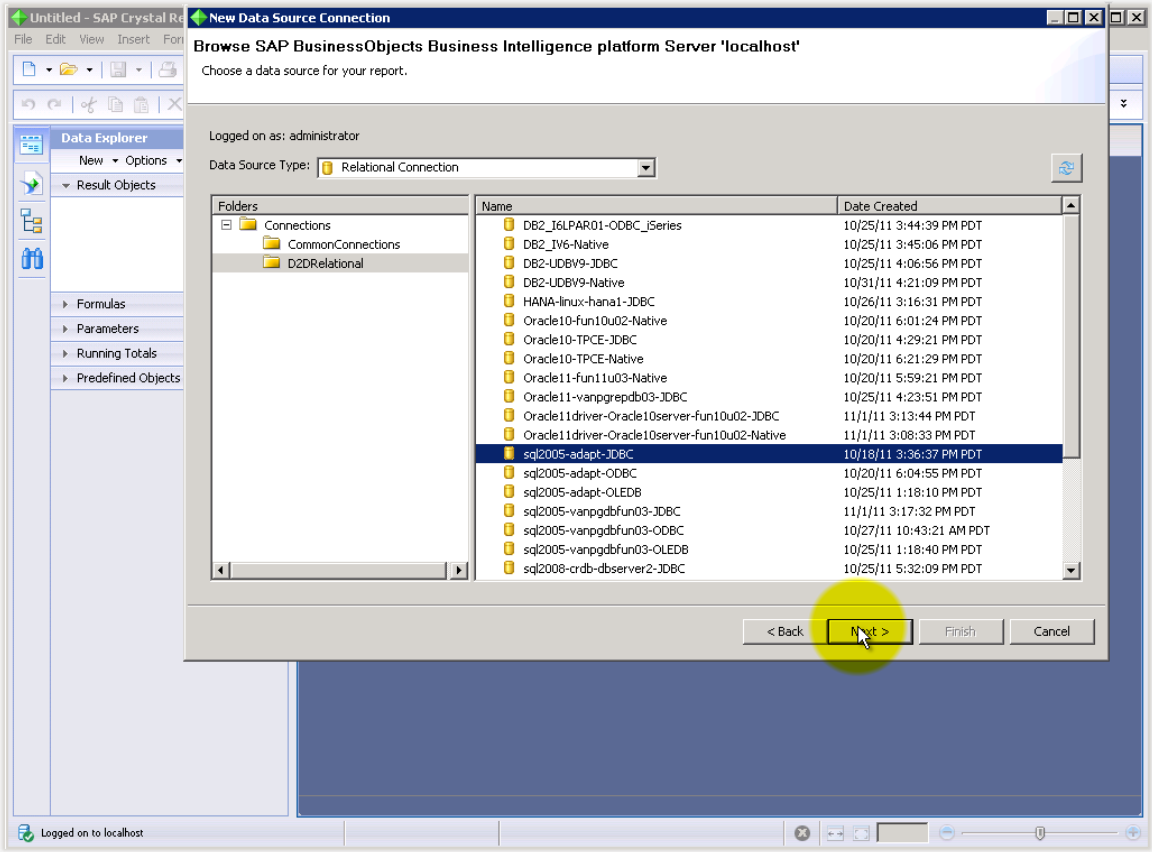
Demo

- Choose a data source type
  - Expand SAP BusinessObjects Business Intelligence platform
  - Click Browse Repository



Demo

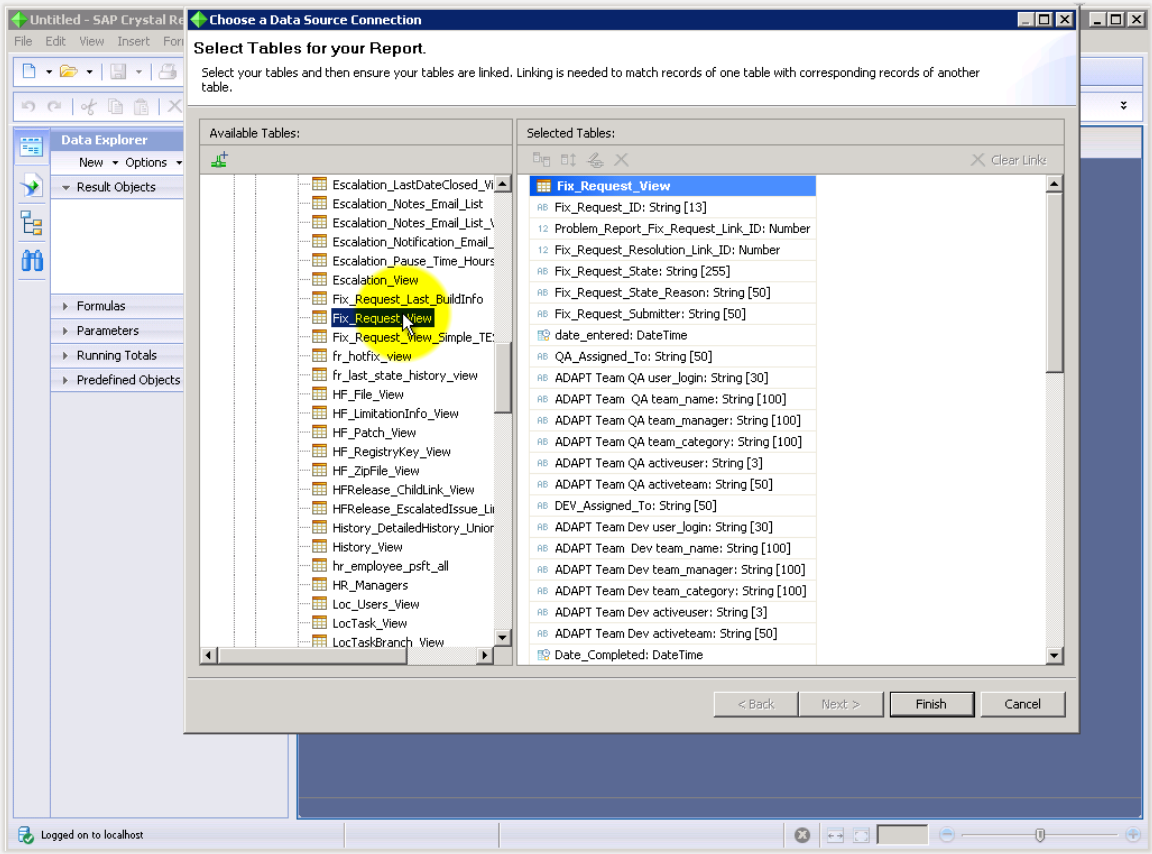
- Choose a Relational Connection
  - Select Relational Connection in the Data Source Type drop-down menu
  - Select a connections folder
  - Select a Relational Connection
  - Click Next



Demo

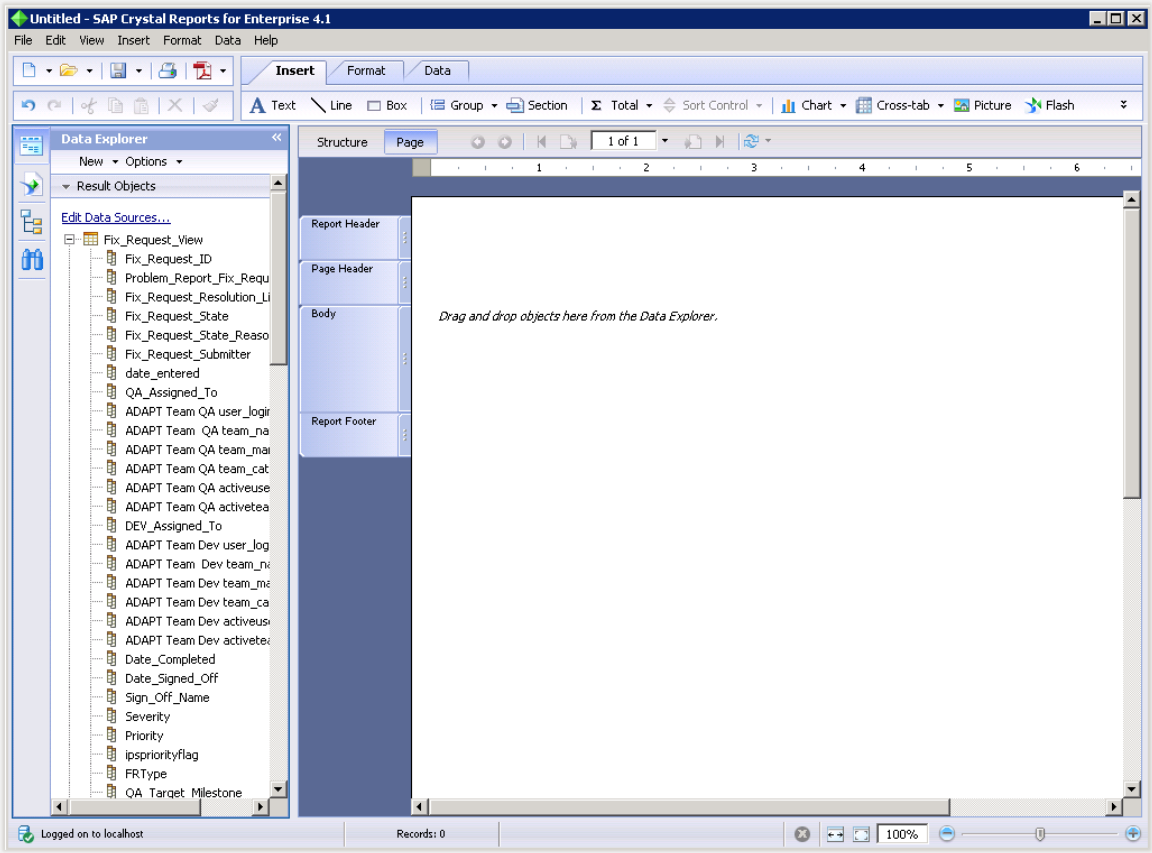
- Select Tables

  - Choose tables and views
  - Double click or drag and drop them into the Selected Tables panel
  - Crystal Reports will create default joins when possible
  - Joins can be edited if necessary



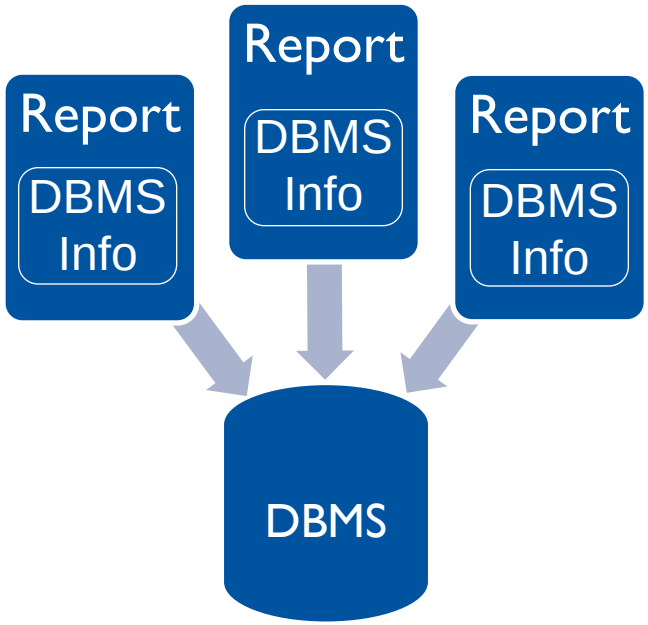
Demo

- Design the report
  - Tables and fields appear in the Data Explorer panel
  - Drag and drop them to create a report

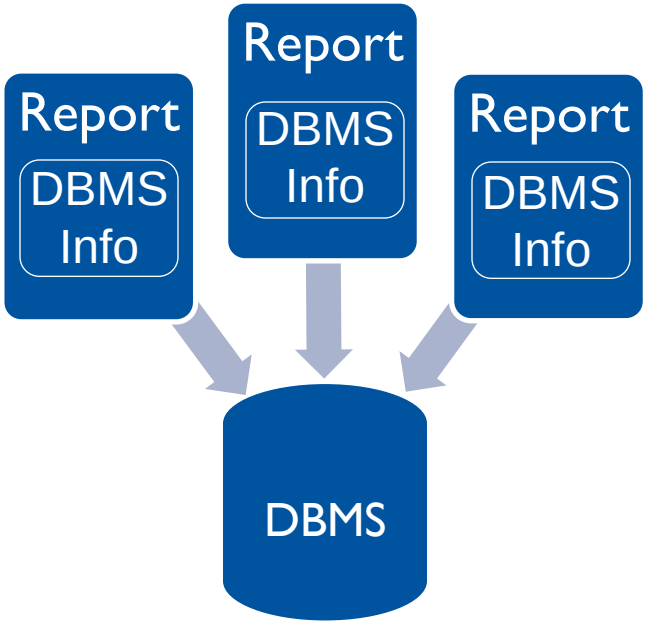


How it Works - Desktop (unmanaged) Reports

Crystal Reports For Enterprise



Crystal Reports 2011



Reports outside of the BI Platform repository contain connection info, as they always have.

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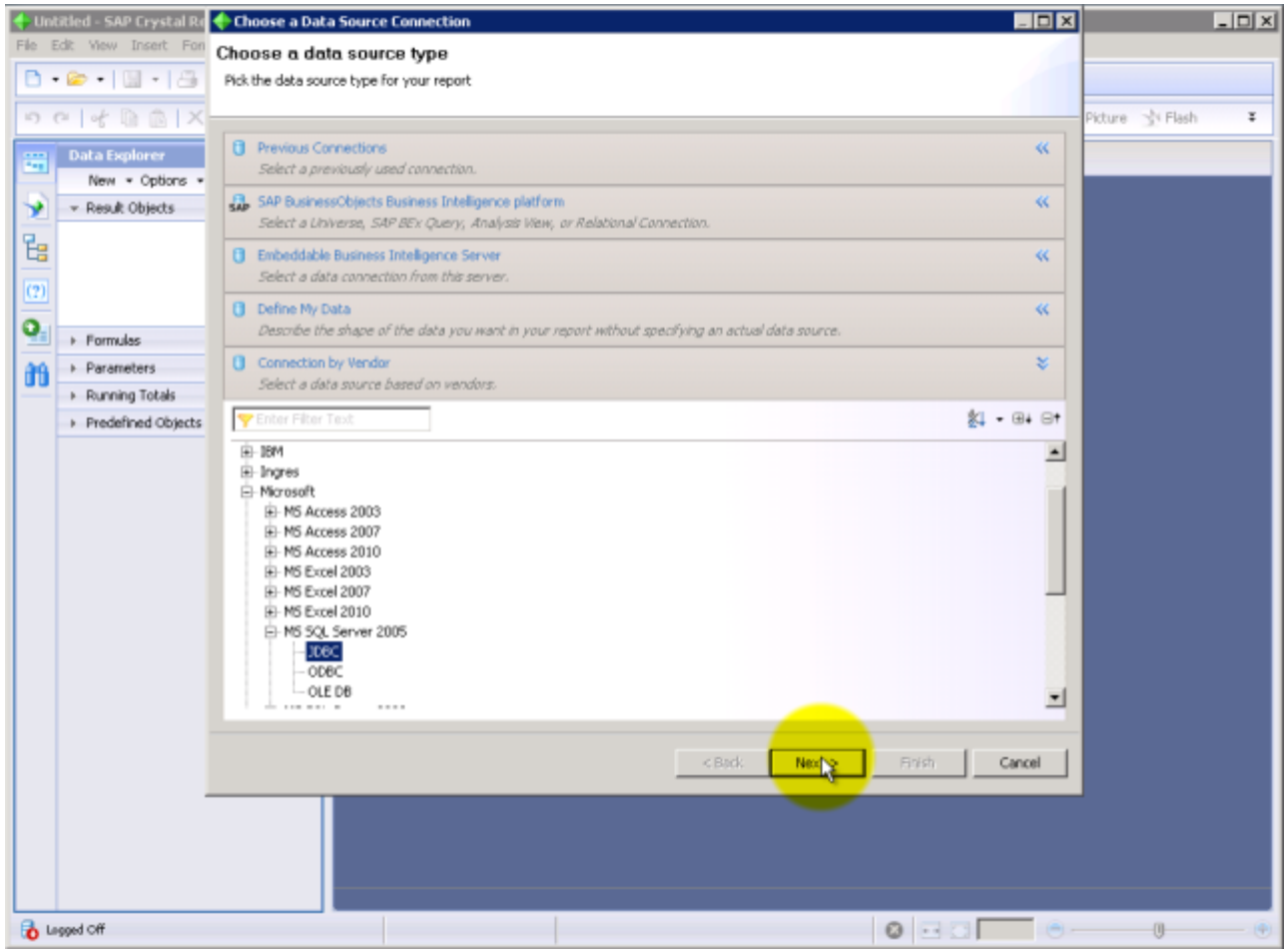
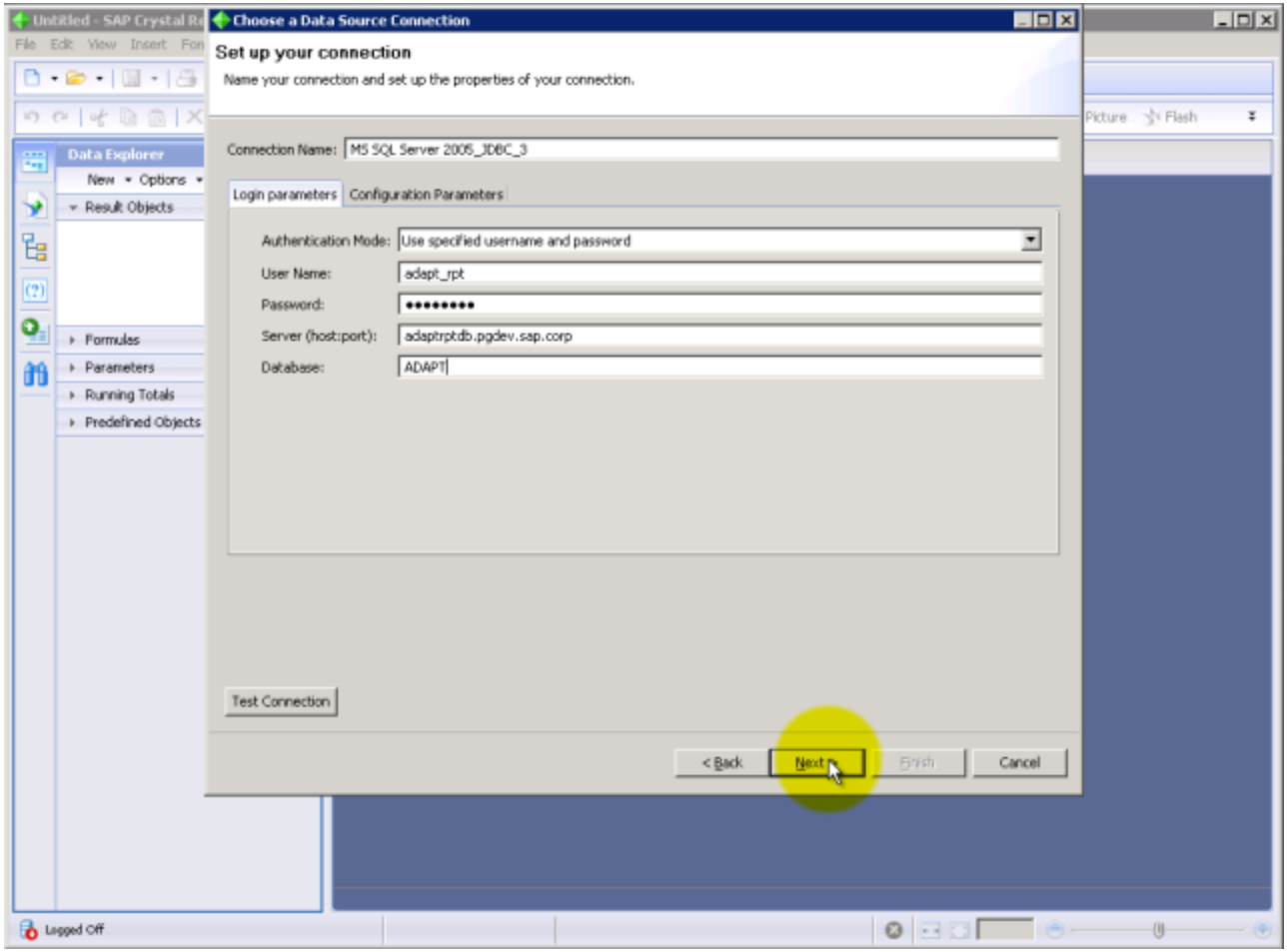
Demo

- Create a new report
  - Click File->New
  - Select Connection by Vendor
  - Choose a vendor and driver type for the DBMS you're using



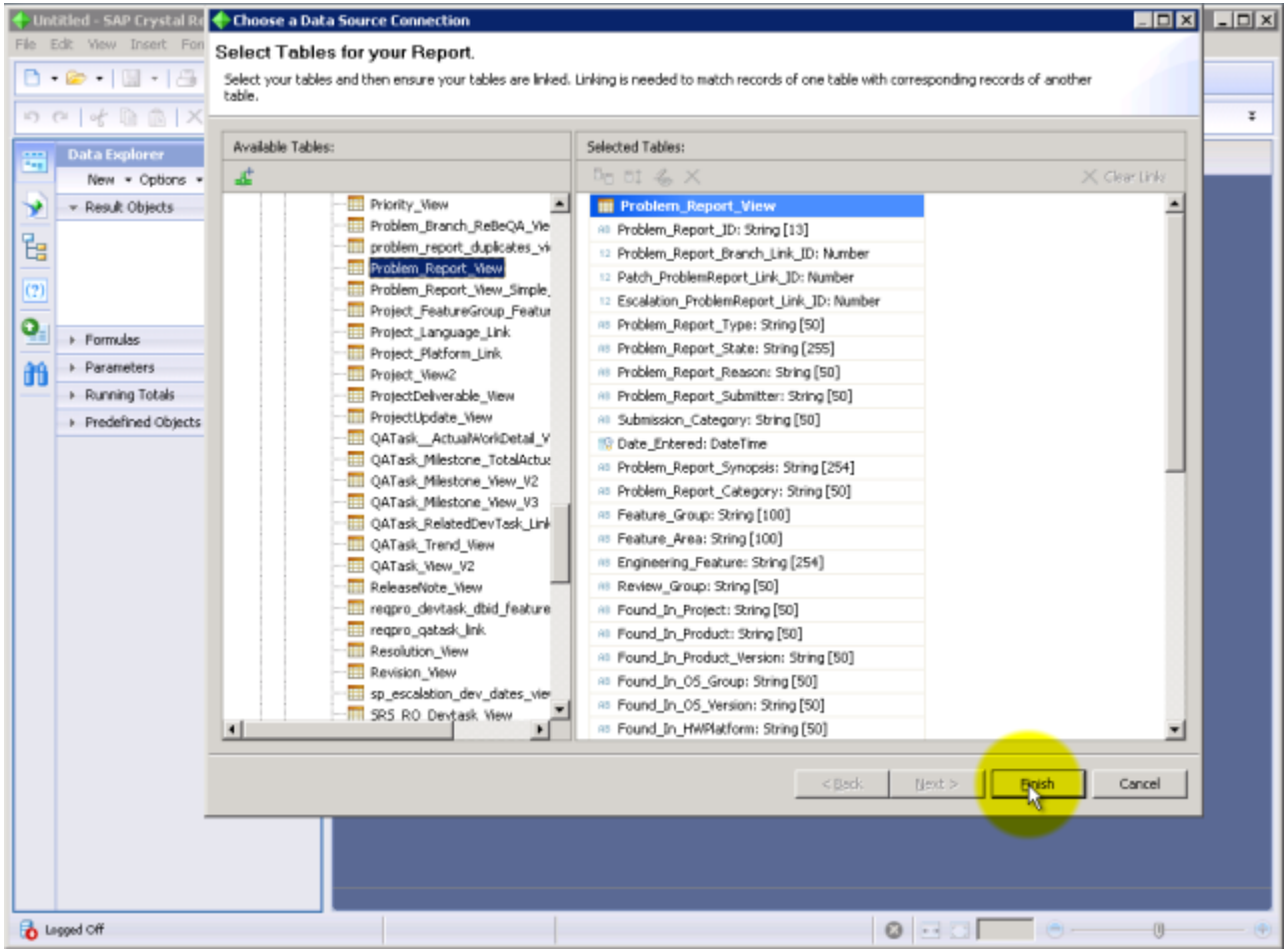
Demo

- Set up the connection
  - Depending on the connection type you're using, you may have to enter the server name, authentication info, etc.
  - Click Next when done



Demo

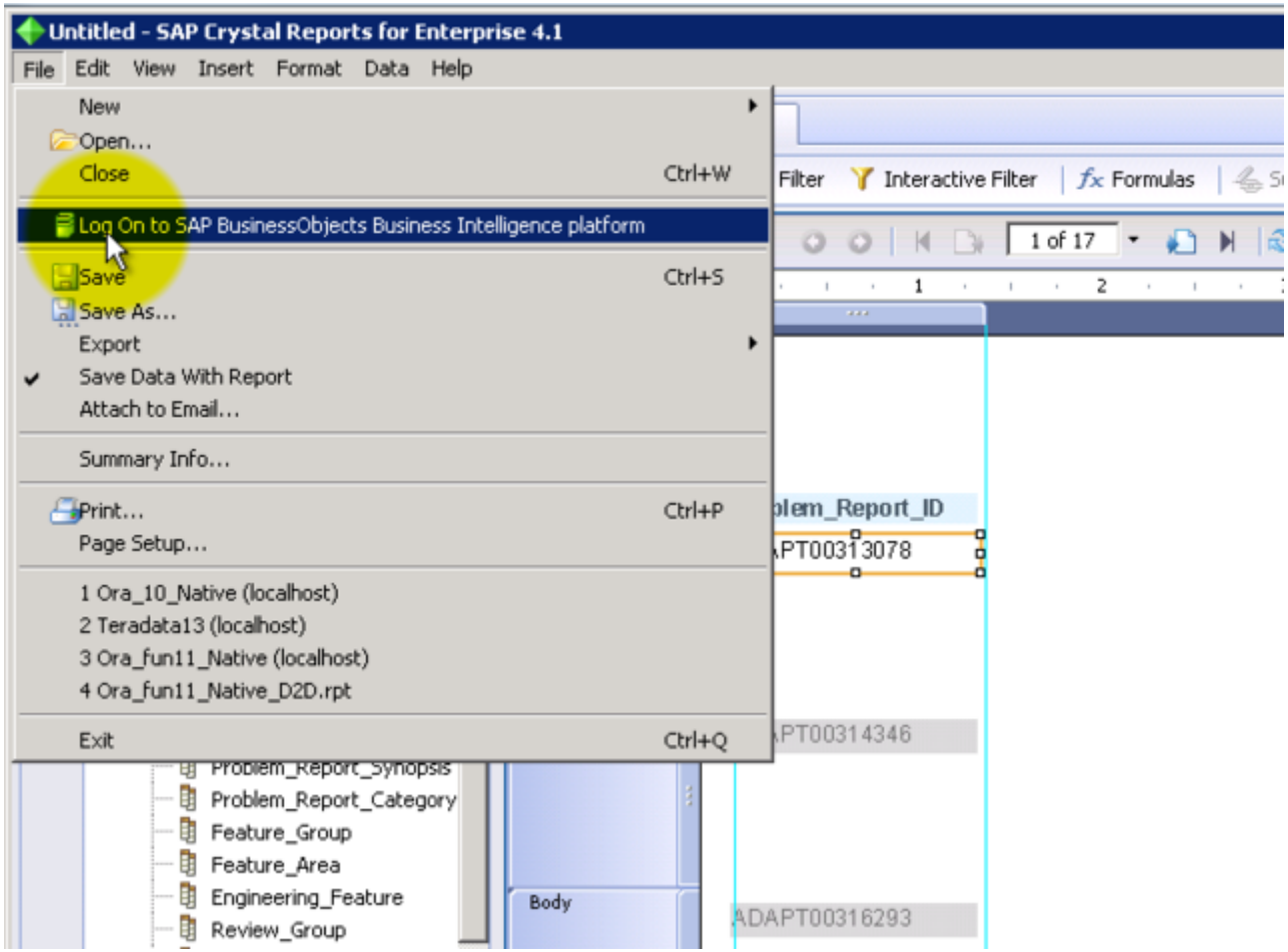
- Choose Tables
  - Select tables to include
  - Add, remove or edit joins as required
  - Click Finish when done



Demo

- Try to Save the Report to BIP

  - Click File->Log On…
  - Enter your BIP credentials
  - Click File->Save

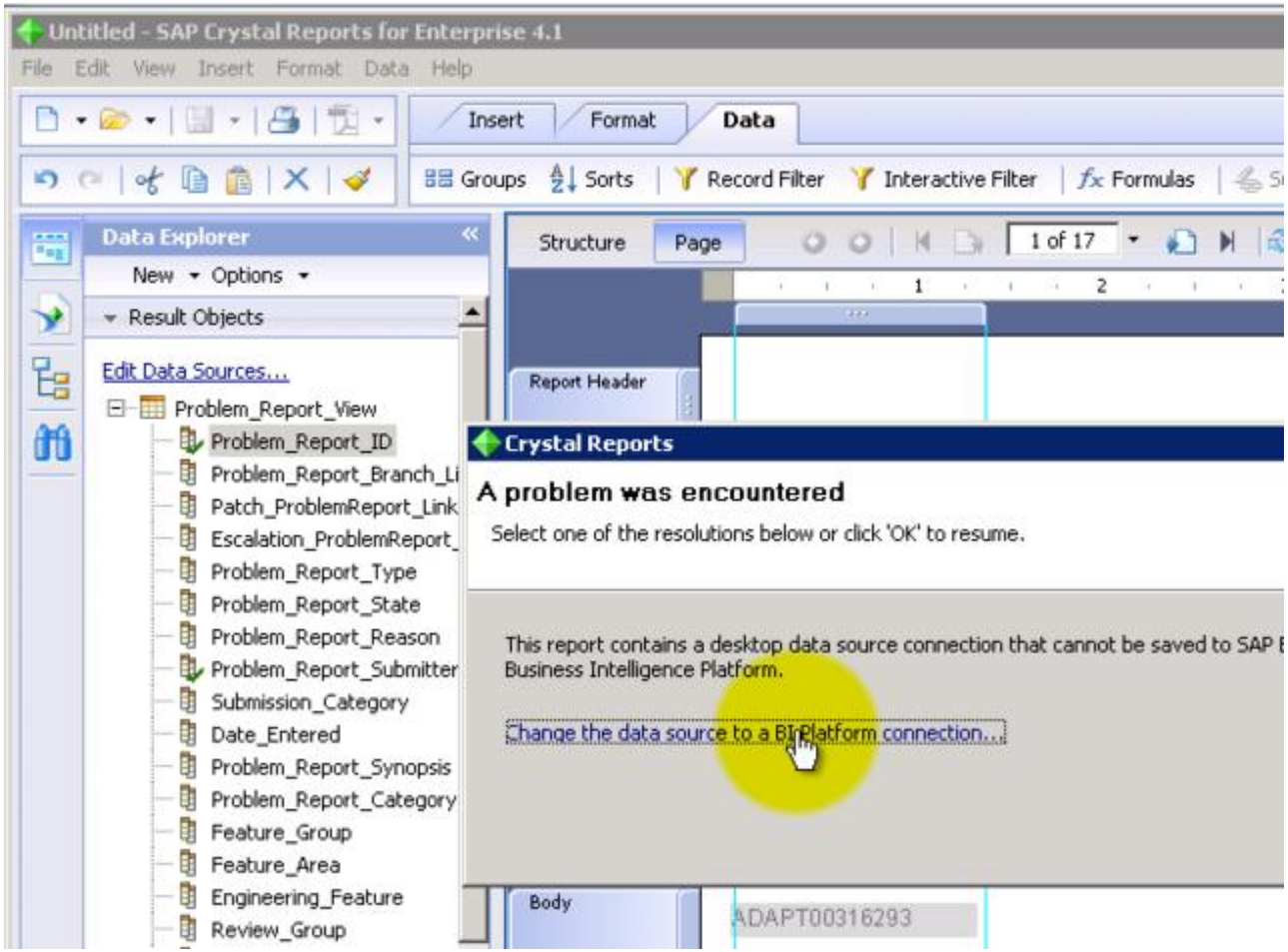


Demo

- Use BI Platform connection before saving

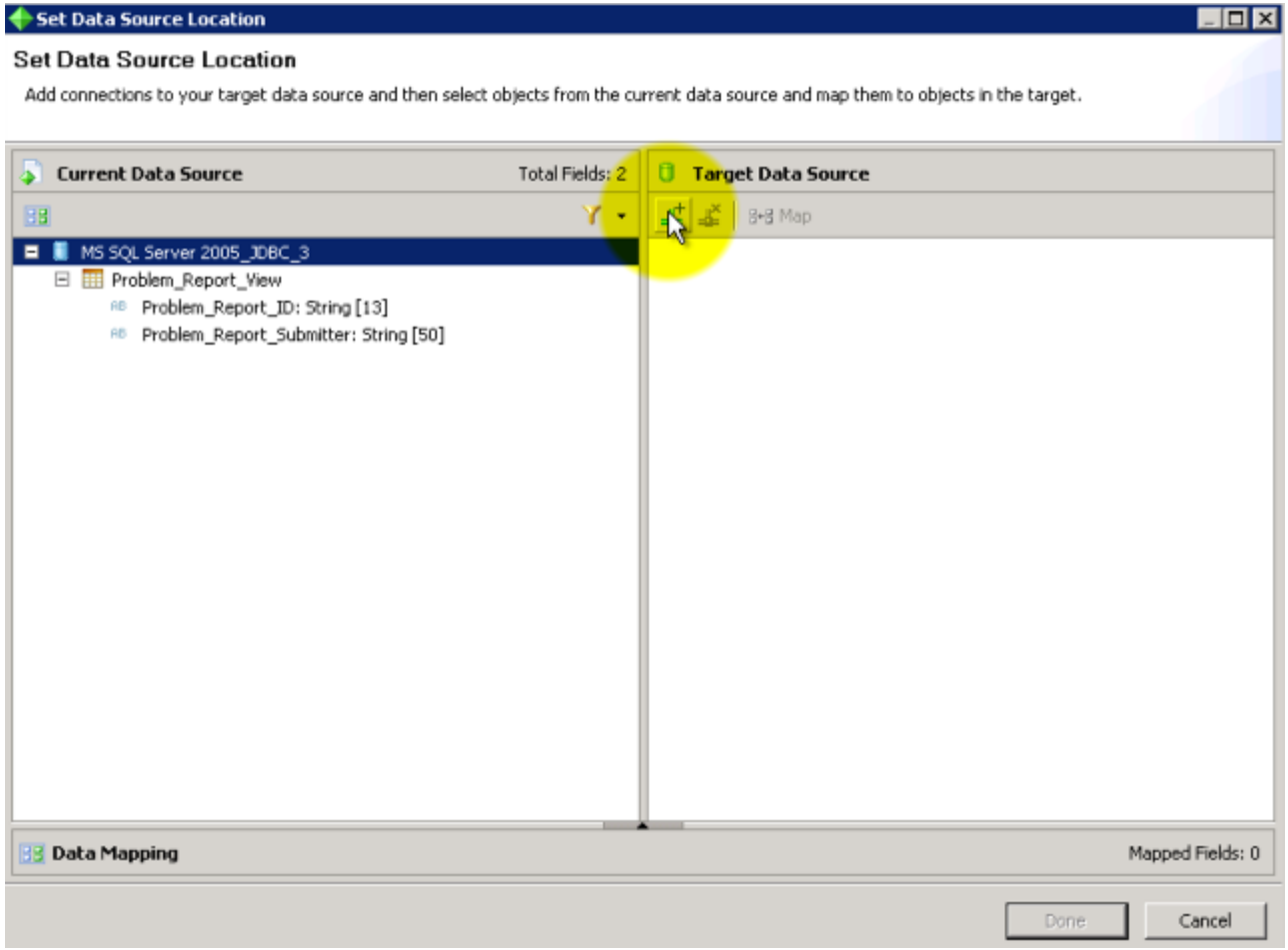
  - You are prevented from saving a report with a desktop connection to BIP

  - Click the link provided to change the data source to a Relational Connection



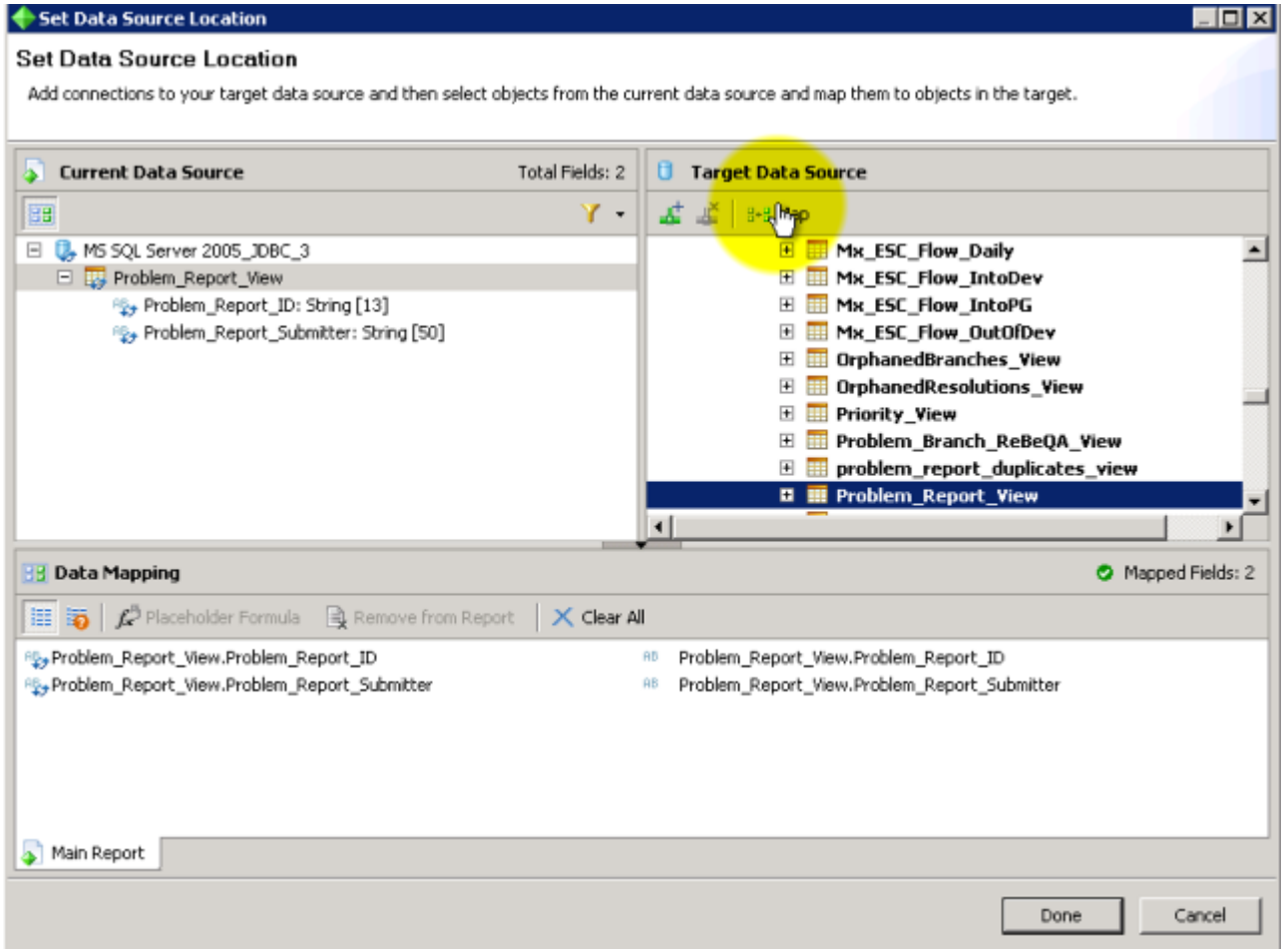
Demo

- Change the Data Source
  - Click the New Connection button to add a target data source
  - Browse the BIP repository for an appropriate Relational Connection


Set Data Source Location
Set Data Source Location
Add connections to your target data source and then select objects from the current data source and map them to objects in the target.
Current Data Source
Total Fields: 2
Target Data Source
Map
MS SQL Server 2005_JDBC_3
Problem_Report_View
Problem_Report_ID: String [13]
Problem_Report_Submitter: String [50]
Data Mapping
Mapped Fields: 0
Done
Cancel

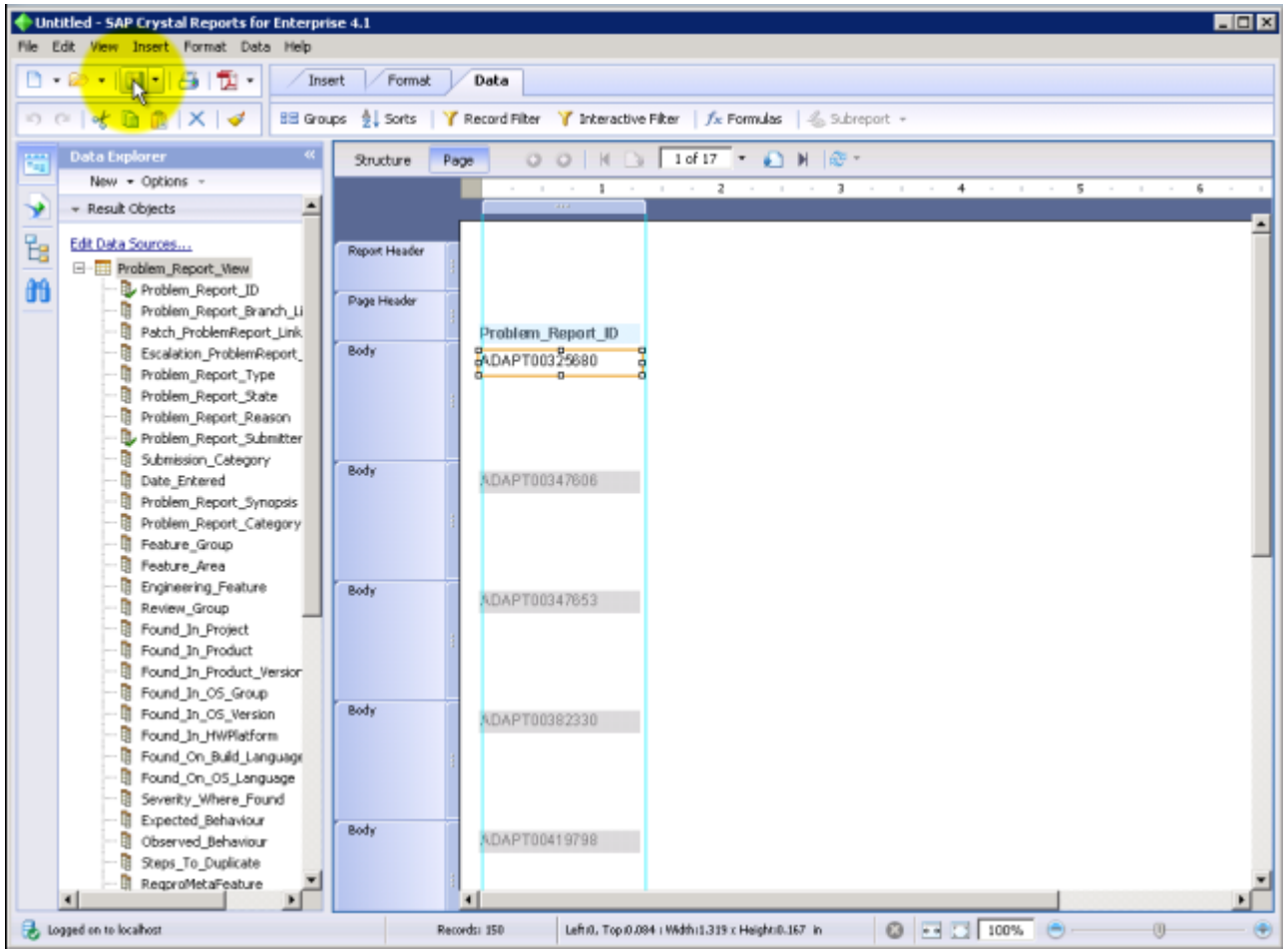
Demo

- Map Tables
  - Select a table (or field) from the current data source
  - Select its equivalent in the target data source
  - Click the Map button
  - When all tables/fields are mapped, click Done



Demo

- Save the Report to BI Platform
  - Click File->Save
  - Save the report to BI Platform (successfully, this time)



Relational Connection Objects considerations

- All Direct to Data Reports are required to use a relational connection object when published to the BI Platform
  - Use IDT to create and edit relational connections
  - Cannot change database name for most DBMS types
  - Cannot change between different database vendors
- Accidentally deleting Relational Connection objects on BI Platform
  - Reports must be opened and repaired in CR Designer when connection objects are mistakenly deleted. Customers are advised to secure the BI Platform connection objects to administrators only
- Use Lifecycle Management to move content between systems to preserve report to connection object relationships

Additional Resources

- http://www.google.com/url?sa=t&rct=j&q=xi4%20info%20design%20tool%20pdf&source=web&cd=1&ved=0CCQQFjAA&url=http://help.sap.com/businessobject/product_guides/boexir4/en/xi4_info_design_tool_en.pdf&ei=vh0eT8qVIOWq2QXFjtWzDw&usg=AFQjCNGKds4L5YCL4LYD4xNXPAck6AvhhQ
  - SAP's User Guide for the Information Design Tool
- http://www.google.com/url?sa=t&rct=j&q=sap%20crystal%20reports%20for%20enterprise%20user's%20guide&source=web&cd=1&sqi=2&ved=0CCQQFjAA&url=http://help.sap.com/businessobject/product_guides/boexir4/en/xi4_cr_ent_usergde_en.pdf&ei=pB8eT_6lHsrE2QW-3JioDw&usg=AFQjCNEaA6xvwEeR77-Q0LK7Su2SPa2ZFw
  - SAP's User Guide for CRE
- http://www.google.com/url?sa=t&rct=j&q=migrating%20universes%20to%20sap%20business%20objects%204.0&source=web&cd=1&sqi=2&ved=0CCoQFjAA&url=http://www.sdn.sap.com/irj/scn/index?rid=/library/uuid/804766e9-8dbe-2d10-a691-82af1e70effd&overridelayout=true&ei=nSAeT-hCipTbBcHOmf4O&usg=AFQjCNG-NEvHsJW0_YN14zrCbVfg-lBJ4w
  - SCN Paper that answers some common questions
- http://www.google.com/url?sa=t&rct=j&q=sap%20bo%20bi4.0%20unv%20to%20unx%20universe%20conversion%20relational%20db&source=web&cd=3&sqi=2&ved=0CC0QFjAC&url=http://wiki.sdn.sap.com/wiki/display/BOBJ/Conversion+of+the+relational+universes+in+BI+4.x,+from+UNV+to+UNX&ei=iCEeT4DQAuPo2AWF7bGfDw&usg=AFQjCNHrkZoCGW9Xxa4rpDMz76x1RBlUZw
  - A very detailed blog on SCN about converting relational Universes to the Common Semantic Layer

It's your turn

- Q & A
- Contact Info – Brian Durning
  - Brian_Durning@Dell.com
  - Twitter: daltexswede
  - Blog: Crystalblogger.com
- Contact Info - Henry Kam
  - Henry.Kam@SAP.com
- Don't forget to fill out your online survey
  - In the mobile guide from either your Personal Agenda or the Overall Agenda select this session
  - Select the "Survey" button in the session description
  - Answer the survey and be sure to select "Submit"

Thank you for participating.

Please remember to complete and return your evaluation form following this session at www.sapandasug.com.

For ongoing education on this area of focus, visit the Year-Round Community page at www.asug.com/yrc

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0314

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